

Search history

- Search 1: injection well and rainwater and treatment and filter and tank and trap (Results 0)  
Search 2: device and tank and rainwater and treatment and filter (Results 1064)  
Search 3: CPC=(c02f) (Results 202365)  
Search 4: 2 and 3 (Results 420)  
Search 5: CPC=(e03b) (Results 22416)  
Search 6: 4 and 5 (Results 63)

1) Family number: 17737005 (DE29508696U1)

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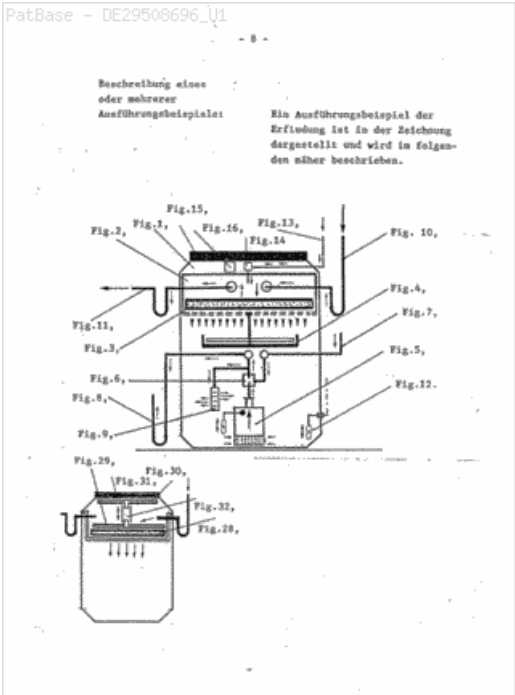
Title: Reinigungsabwasser Recyclingsystem

**Abstract:** Source: DE29508696U1 [DE] (Claim 1) 1. Ein Reinigungsabwasser-Recyclingsystem mit Filterprozesscontainer, der bereits benutztes Wasser vom Waschbecken, Bause, Badewanne, Waschkabine aufnimmt, und als gefiltertes Spülwasser für WC-Spülung-Toilettensystem zur Verfügung stellt. Kennzeichnender Teil: dadurch gekennzeichnet, dass das Reinigungsabwasser Recyclingsystem Filterprozesscontainer für Abwasserausnutzung im Bad und WC. Waschkabine, aus einem Filterprozesscontainer Fig. 1, und mehreren Vorrichtungen wie Reinigungsabwasserlaufsiphon Fig. 10, Uebelsiphon Fig. 11, zum Fallrohr, Filtereinsatzbioprozesssystem-Filtereinlage Fig. 3, sowie trockenlaufgeschützte Förderaumpumpe Fig. 5, oder Druckpumpe Fig. 34, ausserhalb des Filterprozesscontainers Fig. 1, die je für sich hergestellt sind und jeweils einen bestimmten Funktionsablauf für die Abwasserausnutzung für die WC-Spülung hervorrufen, zusammengesetzt ist. Der Filterprozesscontainer Fig. 1, befindet sich aufgestellt unterhalb des Waschbeckens-Waschtische, Fig. 24, oder eingebaut in einem Unterschrank, Fig. 22, bzw. daneben aufgestellt. - 25 - - 25 - '9 ??? Oberbegriff des Unteranspruch s:

**Machine translation:** (Claim 1) 1 A Reinigungsabwasser-Recyclingsystem mit Filterprozesscontainer, der bereits benutztes Wasser vom Basin, B, bathtub, wash house aufnimmt, und als gefiltertes Spülwasser für Toiletten-System zur Verfügung stellt. Kennzeichnender Teil: wherein the cleaning the wastewater recycling system for wastewater filtering process container exploitation in the bathroom and toilet. Waschkabine from a Filterprozesscontainer Fig. 1, and several devices like Reinigungsabwasserlaufsiphon Figure 10, Uebelsiphon 11 shows, the drop tube, Filtereinsatzbioprozesssystem filter insert Figure 3, and trockenlaufgeschützte Förderaumpumpe Fig. 5, or pressure pump 34 is, outside of the filtering process container Fig. 1, the for each are produced and each is a specific functional sequence for Abwasserausnutzung für the toilet flushing hervorrufen is zusammengesetzt z. The Filterprozesscontainer Fig. 1, is placed underneath the sink washbasins s, FIG 24, or built into a cabinet, Fig 22, or placed next to it. - 25 - - 25 - '9 ??? In the preamble of claim s:

Classifications:

**International (IPC 8-9):** C02F3/04 C02F3/12 E03B1/04 (Advanced/Invention);  
C02F3/04 C02F3/12 E03B1/00 (Core/Invention)  
**International (IPC 1-7):** B01D35/02 C02F3/12 E03C1/01 E03C1/12 E03D5/00  
**CPC:** Y02W10/15 C02F3/1242 C02F3/04 C02F3/12 E03B1/04 E03B2001/045  
**European:** C02F3/04 C02F3/12 C02F3/12N2 E03B1/04 P03B1/04B20



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE29508696 U1      | 19961128         | DE19952008696U     | 19950524         |

Priority:

DE19952008696U 19950524

Probable Assignee: BLASCHKE RICHARD DR ING H C

**Assignee(s):** (std): BLASCHKE RICHARD DR ING H C

**Assignee(s):** BLASCHKE RICHARD DR ING H C 57250 NETPHEN DE ; BLASCHKE RICHARD DR ING HC

**2) Family number: 44118011** (US7632408B)

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**Title:** PASSIVE DRAIN FIELD SYSTEM FOR WASTEWATER TREATMENT AND ASSOCIATED METHODS

**Abstract:** A passive drain field assembly reduces nitrogen in wastewater by facilitating nitrification and denitrification. A first chamber receives effluent into a multi-pipe bundle. An air vent is provided that extends from the atmosphere into the first chamber. A second chamber receives effluent from the first chamber, and contains a medium, beneath which is positioned a drainage pipe for releasing treated effluent into the soil therebeneath. A berm creates a retention area in the second chamber that is lined with a water-impermeable liner. In use, ammonia present in the effluent is converted to nitrate in the presence of the oxygen admitted by the air vent in the first chamber. The liquid retained upstream of the berm and above the liner undergoes anaerobic reactions. The remaining liquid proceeds to a place in the second chamber from which the drainage pipe can be entered, from which the treated wastewater can enter the soil.

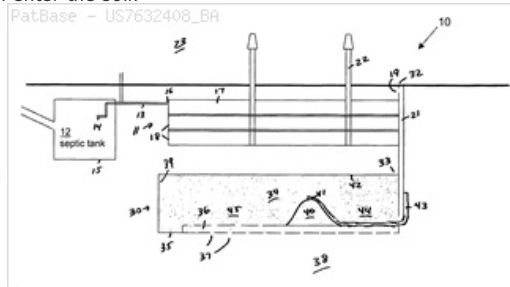
**Classifications:**

**International (IPC 8-9):** C02F3/30 E02B11/00 (Advanced/Invention); C02F3/30 (Core/Invention)

**CPC:** Y10S210/903 C02F3/302 C02F3/288 C02F3/306 C02F2101/16 C02F2103/005 C02F1/004 C02F2103/001 E03B3/03 E03F1/005 Y02A20/108

**European:** C02F3/28T4 C02F3/30D C02F3/30D4B M02F1/00D6 M02F101/16 M02F103/00B M02F103/00E

**US:** 210/151 210/170.08 210/605 210/615 210/617 210/630 210/747 210/747.1 210/903 405/38 405/43 405/45 405/50 405/51



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US7632408 BA       | 20091215         | US20080147722      | 20080627         |
| US8240950 BA       | 20120814         | US20090545291      | 20090821         |
| US8753036 BA       | 20140617         | US20120584067      | 20120813         |

**Priority:**

US20070947060P 20070629 US20080147722 20080627 US20090545291 20090821  
US20120584067 20120813

**Probable Assignee:** ENVIRONMENTAL CONSERVATION SOLUTIONS LLC

**Assignee(s):** (std): EVERSON DOUGLAS G ; PLASTIC TUBING

**Assignee(s):** PLASTIC TUBING IND ; PLASTIC TUBING IND INC ; PLASTIC TUBING INDUSTRIES INC ; ENVIRONMENTAL CONSERVATION SOLUTIONS LLC

**Inventor(s):** (std): EVERSON DOUGLAS G

**Agent(s):** ALLEN DYER DOPPELT MILBRATH AND GILCHRIST; ALLEN DYER DOPPELT MILBRATH AND GILCHRIST PA; ALLEN DYER ET AL

**3) Family number: 17708014** (DE9417730U1)

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**Title:** VORRICHTUNG ZUR WIEDERVERWENDUNG VON GRAUWASSER Device FOR THE REUSE OF GRAY WATER (Machine translation)

**Abstract:** Source: DE9417730U1 [DE] (Claim 1) 1. Vorrichtung zur Wiederverwendung von Grauwasser, welche einen Sammelbehälter zur Aufnahme desselben aufweist, an dem eine oder mehrere Verbraucher angeschlossen sind und in dem eine Pumpe zur Förderung des Grauwassers zu den Verbrauchern angeordnet ist, dadurch gekennzeichnet, dass dem Sammelbehälter (1) eine elektrolytische Zelle (7) zur anodischen Oxydation, bei der im Grauwasser befindliche Chloriden in Hypochlorit umwandelbar sind, zugeordnet ist.

**Machine translation:** (Claim 1) 1 Device for reuse of gray water, which a collector has to take the same is connected to the one or more consumers are and in which a pump is disposed sumers Ver-for promotion of the gray water to, wherein the reservoir (1) an electrolytic cell (7) for the anodic oxidation, when located in the gray water chlorination riden in hypochlorite are convertible, is assigned.

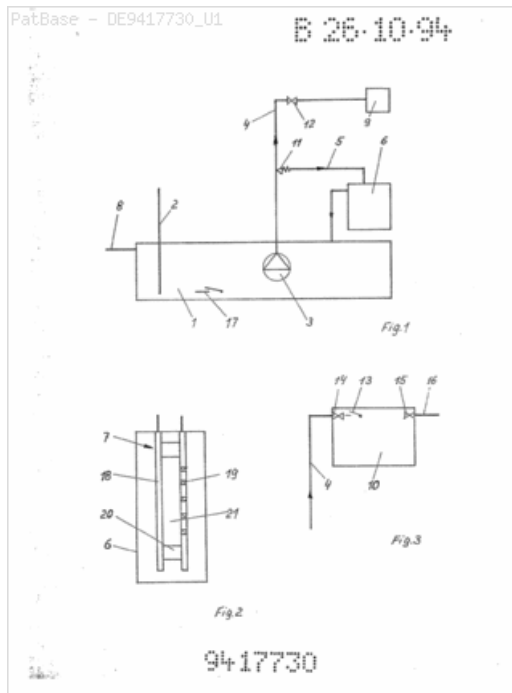
**Classifications:**

**International (IPC 8-9):** C02F1/467 E03B1/04 (Advanced/Invention); C02F1/461 E03B1/00 (Core/Invention)

**International (IPC 1-7):** C02F1/46 E03B11/02 E03C1/01 E03D5/016

**CPC:** Y02A20/108 E03B1/042 C02F1/4674 C02F2103/002 E03B1/04 E03B2001/045 E03B2001/047

**European:** C02F1/467B2 E03B1/04 E03B1/04B2 M02F103/00C P03B1/04B20 P03B1/04B22



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE9417730 U1       | 19950223         | DE19940017730U     | 19941026         |

#### Priority:

DE19940017730U 19941026

**Probable Assignee:** HORN ENRICO

**Assignee(s):** (std): HORN ENRICO ; MUDERSBACH RAINER

**Assignee(s):** MUDERSBACH RAINER 12555 BERLIN DE ; HORN ENRICO 01705 FREITAL DE

#### 4) Family number: 18003079 (DE19519209A1)

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**Title:** BATHROOM WATER AND FILTRATION ASSEMBLY COLLECTS WATER FOR DISCHARGE TO TOILET

**Abstract:** A system collects waste household bathroom water which is then filtered and re-used to flush toilets before discharge to the sewer. The novelty is that the filter and recycling system consists of: (a) a filter process container (1); (b) a number of assemblies such as a water siphon inlet (10); (c) an overflow siphon (11) to a descending pipe; (d) a filter insert bio-process system with filter insert (3); (e) submerged pumps (5) with dry-running prevention switch; (f) a pressure pump (34) located outside the filter process container (1). Each of these fulfils a given function in the sequence of operation when the toilet is flushed. The filter process container (1) is installed under the wash-basin (24) or is built into a cupboard (22).

#### Classifications:

**International (IPC 8-9):** C02F3/04 C02F3/12

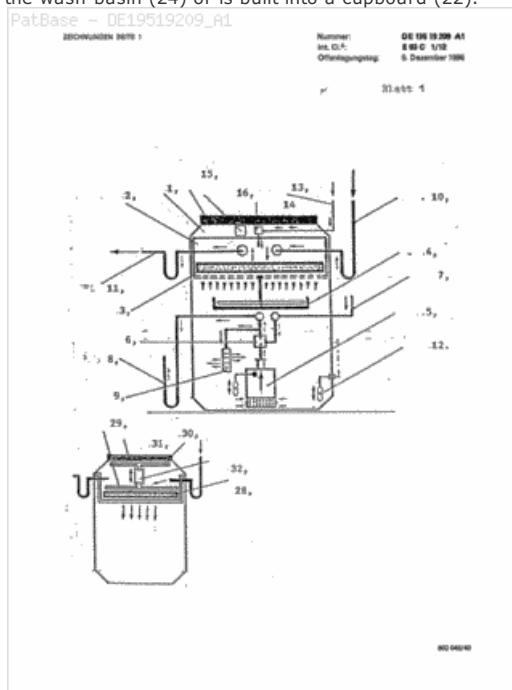
E03B1/04 (Advanced/Invention);

C02F3/04 C02F3/12 E03B1/00 (Core/Invention)

**International (IPC 1-7):** B01D35/02 C02F3/12 E03C1/01 E03C1/12 E03D5/00

**CPC:** Y02W10/15 C02F3/1242 C02F3/04 C02F3/12 E03B1/04 E03B2001/045 Y02A20/148

**European:** C02F3/04 C02F3/12 C02F3/12N2 E03B1/04 P03B1/04B20



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE19519209 A1      | 19961205         | DE19951019209      | 19950524         |

**Priority:**

DE19951019209 19950524

**Probable Assignee:** BLASCHKE RICHARD DR ING H C

**Assignee(s):** (std): BLASCHKE RICHARD DR ING H C

**Assignee(s):** BLASCHKE RICHARD DR ING H C 57250 NETPHEN DE ; BLASCHKE RICHARD DR ING HC

**Inventor(s):** (std): BLASCHKE RICHARD DR ING

**Inventor(s):** BLASCHKE RICHARD DR ING H C ; BLASCHKE RICHARD DR ING HC

**5) Family number: 64458088 (US2018361276A)**

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**Title:** A FILTERING APPARATUS COMPRISING AN INLET AND AT LEAST TWO OUTLETS

**Abstract:** An apparatus for filtering solid and/or non-dissolved contaminants entrained in flowing water, the apparatus comprising an inlet for the water containing the entrained solid or non-dissolved contaminants to flow into a filtering chamber; a first outlet for expelling the unfiltered water from the filtering chamber; the filtering chamber further comprising: a curved or corner portion in the filtering chamber providing at least a part of a flow path of water from the inlet to the first outlet such that flow of the water along the curved or corner portion changes the direction of flow of the water; and a filtering screen for filtration of solid and/or non-dissolved contaminants from the influent water thereby allowing passage of filtered water out of the filtering chamber.

**Classifications:**

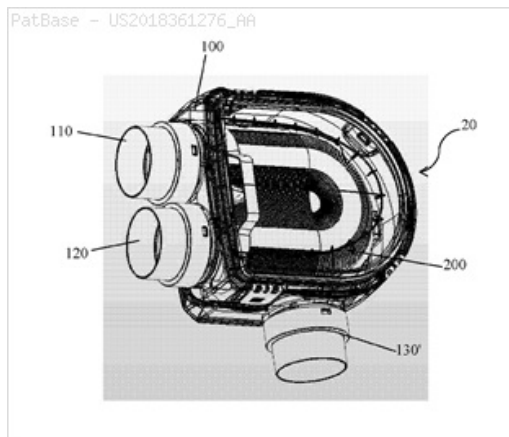
**International (IPC 8-9):** B01D17/00 B01D21/00 B01D21/26  
B01D29/00 B01D29/35 B01D29/56 B01D29/90 C02F1/00 C02F1/38  
C02F1/40 C02F1/52 E03B1/04 E03B3/02

E03F1/00 (Advanced/Invention);

C02F103/00 (Advanced/Non-invention)

**CPC:** B01D17/10 B01D29/356 B01D2201/60 C02F1/001  
C02F2103/001 C02F2301/026 C02F2303/24 E03B1/041 E03B3/02  
E03B2001/047 E03F2201/10 Y02A20/108 B01D29/0097 B01D29/56  
B01D29/90

**US:** 1/1 210/238



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2016278350 AA    | 20180118         | AU20160278350      | 20160609         |
| CN107922215 A      | 20180417         | CN201680046794     | 20160609         |
| EP3310717 A1       | 20180425         | EP20160810605      | 20160609         |
| EP3310717 A4       | 20190220         | EP20160810605      | 20160609         |
| IN201717044895 A   | 20180112         | IN201717044895     | 20171213         |
| US2018361276 AA    | 20181220         | US20160736294      | 20160609         |
| WO16201493 A1      | 20161222         | WO2016AU50463      | 20160609         |

**Priority:**

AU20150902372 20150619 WO2016AU50463 20160609

**Probable Assignee:** RAIN HARVESTING PTY LTD

**Assignee(s):** (std): RAIN HARVESTING PTY LTD

**Inventor(s):** (std): SEE ANTON LEE ; NINNESS SHAUN ; LEE SEE ANTON

**Agent(s):** FISHER ADAMS KELLY CALLINANS; SPRUSON AND FERGUSON; WILSON GUNN; CULLENS PTY LTD

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR  
CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID  
IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN  
MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG  
SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**6) Family number: 53425090 (US2014231328A)**

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**Title:** RAINWATER COLLECTION AND DISTRIBUTION DEVICE

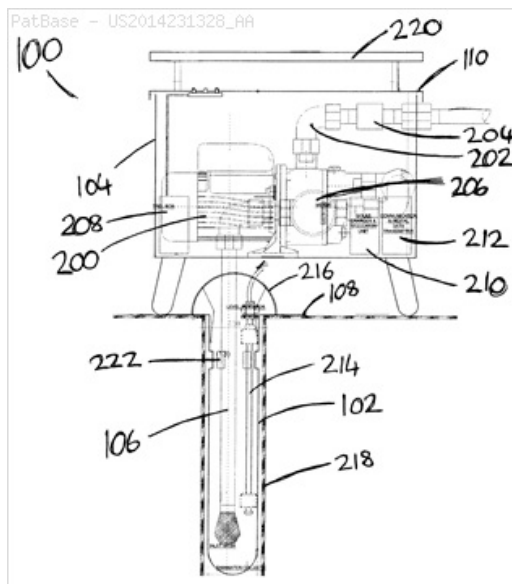
**Abstract:** The present invention is directed towards a rainwater collection and distribution device comprising at least one substantially elongate collector tank having an open upper free end and a closed lower free end, whereby the elongate collector tank is dimensioned to fit within a downpipe with its open upper free end exposed to rainwater entering the downpipe; the rainwater collection and distribution device further comprising a connection conduit having a lower open end adjacent the lower closed end of the elongate collector tank, and an upper free end connected to a pump; whereby, a delivery conduit is connected between the pump and a water storage tank. The advantage of providing the pump is that complete control may be exerted over the delivery of the collected rainwater to a water storage tank. Unlike prior art solution, where collected rainwater must be discarded through opening a motorised valve, the collected rainwater is held for immediate delivery, if required, to a water storage tank, by use of the pump.

**Classifications:**

**International (IPC 8-9):** C02F1/00 C02F1/28 C02F1/32 C02F5/00  
C02F9/00 E03B3/02 E04D13/04 (Advanced/Invention)

**CPC:** E04D13/0409 E03B1/041 E03B2001/047 C02F9/00 C02F5/00  
C02F1/001 C02F1/281 C02F1/32 E03B3/02 Y10T137/7313  
Y10T137/86035 Y02A20/108

**US:** 137/395 137/565.17 210/191 210/257.1



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP2769028 A1       | 20140827         | EP20120772098      | 20120928         |
| US2014231328 AA    | 20140821         | US20120348472      | 20120928         |
| WO13045673 A1      | 20130404         | WO2012EP69280      | 20120928         |

#### Priority:

IE20110000440 20110928 WO2012EP69280 20120928

**Probable Assignee:** SHEEHY DENIS

**Assignee(s):** (std): SHEEHY DENIS

**Inventor(s):** (std): SHEEHY DENIS

**Agent(s):** GORMAN FRANCIS FERGUS; LITTON RORY ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 7) Family number: 56715092 (US2016292795A)

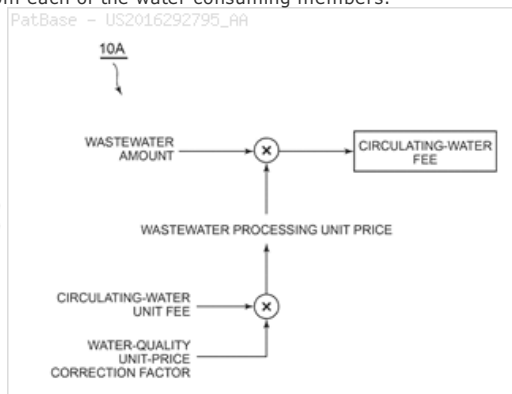
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**Title:** CHARGING DEVICE OF CIRCULATING WATER UTILIZATION SYSTEM AND CIRCULATING-WATER UTILIZATION SYSTEM

**Abstract:** A charging device 10 of a circulating-water utilization system 1 to be constructed in a specific area includes: a wastewater amount measuring unit 18a configured to individually measure an amount of wastewater discharged from each of water consuming members; a water-quality measuring unit 18b configured to individually measure a water-quality index related to a water quality of the wastewater discharged from each of the water consuming members; and a circulating-water fee calculating part 10A configured to calculate a circulating-water fee of each of the water consuming members on the basis of the amount and the water quality of the wastewater discharged from each of the water consuming members.

#### Classifications:

**International (IPC 8-9):** C02F1/00 C02F1/28 C02F1/32 C02F1/38 C02F1/40 C02F1/42 C02F1/44 C02F1/68 C02F1/76 C02F1/78 C02F11/12 C02F3/30 C02F9/00 E03B1/00 E03B1/02 E03F7/00 G01D4/02 G06Q40/00 G06Q50/06 (Advanced/Invention); C02F1/00 (Advanced/Non-invention)  
**CPC:** C02F1/004 C02F1/008 C02F1/283 C02F1/32 C02F1/38 C02F1/42 C02F1/441 C02F1/444 C02F1/68 C02F1/76 C02F1/78 C02F3/30 C02F9/00 C02F11/127 C02F2001/007 C02F2209/008 C02F2209/02 C02F2209/05 C02F2209/06 C02F2209/08 C02F2209/10 C02F2209/11 C02F2209/16 C02F2209/18 C02F2209/20 C02F2209/29 C02F2209/36 C02F2209/40 C02F2303/24 E03B1/02 E03F7/00 G01D4/02 G06Q10/06 G06Q40/12 G06Q50/06 Y02A20/16 C02F1/40 C02F11/12 C02F2303/04  
**US:** 1/1 705/34



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ID201706771 A      | 20170622         | ID2016P0003759     | 20141204         |
| JP2015108253 A2    | 20150611         | JP20130251620      | 20131205         |
| JP5512032 B1       | 20140604         | JP20130251620      | 20131205         |
| MX2016006860 A1    | 20160819         | MX20160006860      | 20141204         |
| US2016292795 AA    | 20161006         | US20140100865      | 20141204         |
| WO15083786 A1      | 20150611         | WO2014JP82098      | 20141204         |

#### Priority:

JP20130251620 20131205 WO2014JP82098 20141204

**Probable Assignee:** MITSUBISHI HITACHI POWER SYSTEMS LTD

**Assignee(s):** (std): MITSUBISHI HEAVY IND LTD ; MITSUBISHI HITACHI POWER SYS

**Assignee(s):** MITSUBISHI HITACHI POWER SYSTEMS LTD

**Inventor(s):** (std): MINAMIURA JUNICHI ; YAGITA HIROYUKI ; YOKOTA YUKINOBU ; KITAGAWA RIKI ; HYODO JUN ; SHIN HAYATO ; KITAGAWA TSUTOMU ; JUN HYODO ; HIROYUKI YAGITA ; RIKI KITAGAWA ; HAYATO SHIN ; JUNICHI MINAMIURA ; YUKINOBU YOKOTA

**Agent(s):** NADIA AM BADAR SH; SEISHIN IP PATENT FIRM PC

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

8) Family number: 51896096 (US2012228117A)

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**Title:** SYSTEM AND METHOD OF PURIFYING AND RECYCLING OR DISCHARGING SEPTIC TANK EFFLUENT, GRAYWATER, RAINWATER AND STORMWATER

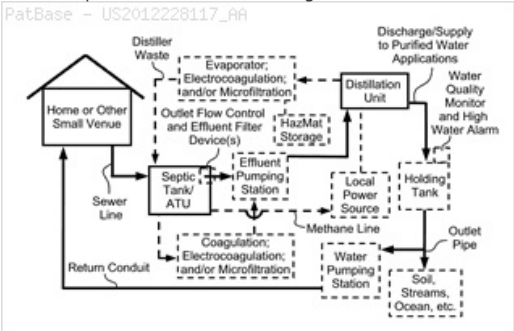
**Abstract:** Methods and systems are disclosed which provide for the purification of effluent from a septic system or natural water from rainwater or stormwater collection devices for the storage and reuse of water. The purified water may be supplied to water applications, such as a return conduit to a home for potable or graywater usage. The distillation unit may be powered by a local power independent of a municipal power grid and which may employ sustainable energy mechanisms. The distiller residue may undergo a volume reduction process, such as evaporation, coagulation, electrocoagulation or microfiltration. The purified water may be stored in a holding tank with sensors to monitor the water quality and water level within the tank. Alarms, release valves or relief valves may be activated in response to such monitoring.

**Classifications:**

**International (IPC 8-9):** B01D3/00 C02F1/04 (Advanced/Invention)

**CPC:** C02F1/04 C02F1/14 C02F1/32 C02F1/444 C02F1/463 C02F1/52 C02F3/1242 C02F3/288 C02F2103/001 C02F2103/002 C02F2103/005 C02F2103/42 C02F2303/04 C02F2303/10 E03B1/041 C02F9/00 Y02W10/30 Y02W10/37 Y02W10/15 Y02W10/12

**US:** 202/163 203/10



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2012228117 AA    | 20120913         | US20120415772      | 20120308         |

**Priority:**

US20110450390P 20110308      US20110485449P 20110512      US20120595890P 20120207  
US20120415772 20120308

**Probable Assignee:**

**Assignee(s):** (std): PANUNZIO MINDY S

**Inventor(s):** (std): PANUNZIO MINDY S

9) Family number: 57763103 (KR20140129406A)

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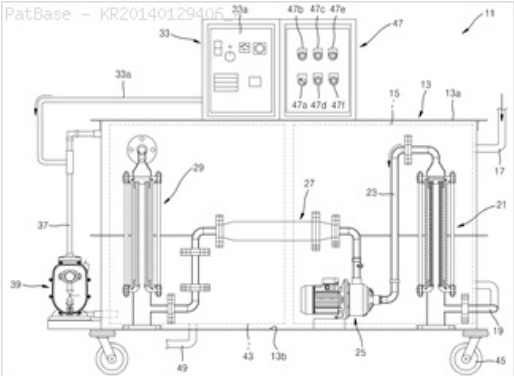
**Title:** RAINWATER RECYCLING DEVICE HAVING STERILIZER USING OZONE

**Abstract:** The present invention relates to a rainwater recycling device having an ozone sterilizer. The rainwater recycling device comprises a rainwater tank for accommodating rainwater supplied from outside; a water treatment unit for passing through the rainwater stored in the rainwater tank to filter impurities and to magnetize the rainwater; a treated water tank for receiving the treated water having passed through the water treatment unit and storing the treated water therein; a circulation means for circulating the treated water stored in the treated water tank to the outside of the treated water tank; and an ozone sterilization means connected to the circulation means and sterilizing the treated water with ozone by applying ozone to the treated water. The rainwater recycling device can be manufactured in a small scale, which allows the device to be installed and operated in a basement of an apartment complex or an office building. In particular, the rainwater recycling device has an excellent removal efficiency of various pollutants or bacteria from rainwater by applying a multi-stage micro-filter, a magnetized sterilizer and an ozone sterilizer at the same time, which allows the usage of rainwater as drinking water in an emergency, thereby extending the recyclability of rainwater.

**Classifications:**

**International (IPC 8-9):** C02F1/48 C02F1/78 (Advanced/Invention)

**CPC:** C02F1/78 C02F1/48 C02F2103/001 C02F2201/008 C02F2201/782 C02F2301/043 E03B3/02



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| KR20140129406 A    | 20141107         | KR20130047093      | 20130429         |

**Priority:**

KR20130047093 20130429

**Probable Assignee:** DAIBONG ENGINEERING CO LTD  
**Assignee(s):** (std): DAIBONG ENGINEERING CO LTD  
**Assignee(s):** DAIBONG ENGINEERING CO  
**Inventor(s):** (std): LEE CHANG YEUL ; LEE SANG WON

**10) Family number: 43225121 (US2011017648A)**

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**Title:** WATER-STORAGE AND WATER-PURIFICATION SYSTEM

**Abstract:** The present invention relates to a water-storing and water-cleaning system. Said system is designed in such a manner that it can be used irrespective of location. It is used, inter alia, in agriculture, in horticulture and in reforestation. Said system comprises a reservoir (2) that is filled with a porous material (3), into which the water is seeped. In order to displace the seepage path, the reservoir (2) contains at least one barrier layer (5) made of a water-impermeable material, that separates the two layers made of the porous material (3) and comprises an outlet (6) for connecting the layers.

**Classifications:**

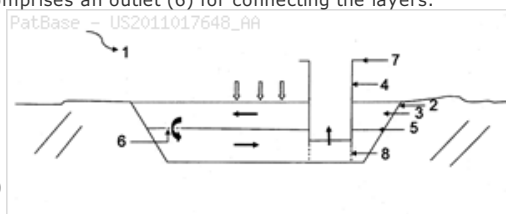
**International (ipc 8-9):** A01G A01G25/00 B01D B65G5/00 C02F C02F1/00 C02F3/00 C02F3/04 E02B11/00 E03B E03B1/04 E03B3/00 E03B3/40 E03F E03F1/00 E21B E21B43/02 (Advanced/Invention); C02F3/00 C02F3/04 E03B3/00 E21B43/00 E21B43/02 (Core/Invention); E03B (Subclass/Invention)

**International (ipc 1-7):** C02F3/04 E03B3/00 E21B43/02

**CPC:** Y02W10/15 E03B1/04 C02F3/00 E03B3/40 E03F1/002 E03B3/00 E03F1/00

**European:** E03B3/00 E03F1/00

**US:** 210/170.01 210/170.07 210/170.070P 405/36 405/37 405/38 405/38P 405/41 405/53 405/53S

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2008324373 AA    | 20090514         | AU20080324373      | 20081110         |
| AU2008324373 BB    | 20120412         | AU20080324373      | 20081110         |
| BRPI0820182 A2     | 20190924         | BR2008PI20182      | 20081110         |
| BRPI1107100 A2     | 20130424         | BR2011PI07100      | 20111227         |
| CN101855407 A      | 20101006         | CN200880115378     | 20081110         |
| CN101855407 B      | 20130327         | CN200880115378     | 20081110         |
| CN102550364 A      | 20120711         | CN201110452566     | 20111223         |
| CN102550364 B      | 20140813         | CN201110452566     | 20111223         |
| CY1113638 T1       | 20160622         | CY20121101147T     | 20121127         |
| DE502007010668 D1  | 20121206         | DE200750010668T    | 20071109         |
| DE602011007355 D1  | 20140717         | DE201160007355T    | 20110412         |
| DK2058441 T3       | 20121217         | DK20070120361T     | 20071109         |
| EP2058441 A1       | 20090513         | EP20070120361      | 20071109         |
| EP2058441 B1       | 20121010         | EP20070120361      | 20071109         |
| EP2402514 A2       | 20120104         | EP20110183031      | 20071109         |
| EP2402514 A3       | 20120314         | EP20110183031      | 20071109         |
| EP2468963 A1       | 20120627         | EP20110162084      | 20110412         |
| EP2468963 B1       | 20140604         | EP20110162084      | 20110412         |
| ES2392993 T3       | 20121217         | ES20070120361T     | 20071109         |
| IL205519 A0        | 20101230         | IL20080205519      | 20081110         |
| IL205519 A1        | 20140430         | IL20080205519      | 20081110         |
| IN03128DN2010 A    | 20101105         | IN2010DN03128      | 20100504         |
| PL2058441 T3       | 20130329         | PL20070120361T     | 20071109         |
| PT2058441 T        | 20121113         | PT20070120361T     | 20071109         |
| SI2058441 T1       | 20130228         | SI20070031121T     | 20071109         |
| US2011017648 AA    | 20110127         | US20080740342      | 20081110         |
| US2011188933 AA    | 20110804         | US20100979238      | 20101227         |
| US8256989 BB       | 20120904         | US20100979238      | 20101227         |
| US8449219 BB       | 20130528         | US20080740342      | 20081110         |
| WO09059794 A1      | 20090514         | WO2008EP09461      | 20081110         |
| ZA201002503 A      | 20110629         | ZA20100002503      | 20100409         |
| ZA201108378 A      | 20120829         | ZA20110008378      | 20111115         |

**Priority:**

EP20070120361 20071109 WO2008EP09461 20081110 US20080740342 20081110  
US20100740342 20101011 US20100979238 20101227 EP20110162084 20110412

**Probable Assignee:** LUXIN GREEN PLANET AG**Assignee(s):** (std): BURKHARDT HOLGER ; GLANZMANN ARTHUR ; LUXIN GREEN PLANET AG ; LUXIN GREEN PLANT AG**Assignee(s):** LUXIN (GREEN PLANET) AG ; LUXIN AG**Inventor(s):** (std): GLANZMANN ARTHUR ; BURKHARDT HOLGER ; ARTHUR GLANZMANN ; HOLGER BURKHARDT

**Agent(s):** SHELSTON IP; SHELSTON IP PTY LTD; MITSCHERLICH PATENT U RECHTSANWAELTE PARTMBB; RUPP CHRISTIAN ET AL; RUPP CHRISTIAN; UNGRIA JAVIER; SANFORD TCOLB AND CO; CHRISTENSEN OCONNOR JOHNSON KINDNESS PLLC; CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC; CHRISTENSEN O CONNOR JOHNSON KINDNESS PLLC

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU

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MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV  
SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

# 11) Family number: 41580125 (WO08025362A1)

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**Title:** A WATER DISTRIBUTION SYSTEM

**Abstract:** The invention provides a water supply system (1) comprising a forward conduit (2) for supplying contaminated water from a supply structure (3) to a consumer structure (4), the consumer structure (4) comprising a purification structure (5) for separating the contaminated water into purified water and brine, a number of purified water outlets for delivering purified water to a consumer, and a rearward conduit (6) for returning the brine from the consumer structure (4) to the supply structure. The invention improves the usage of water of exactly the right quality and thereby facilitates saving water of high qualities for purposes where such a quality is necessary.

## Classifications:

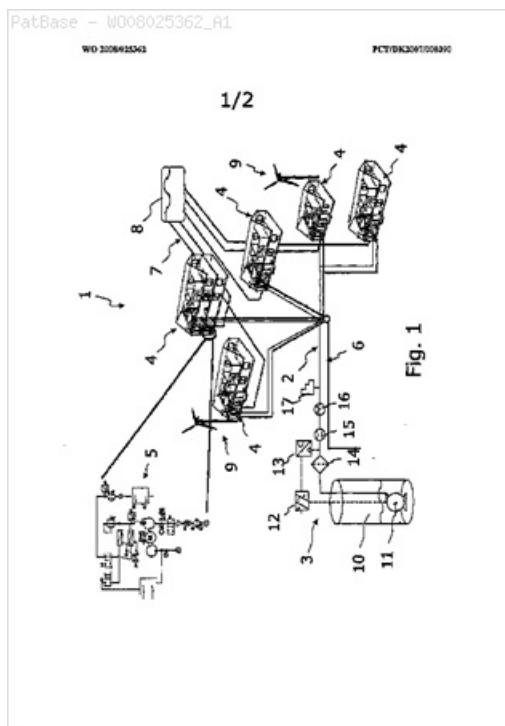
**International (IPC 8-9):** B01D61/02 C02F1/44

E03B3/00 (Advanced/Invention);

B01D61/02 C02F1/44 E03B3/00 (Core/Invention)

**CPC:** B01D61/025 B01D61/06 C02F1/441 E03B3/06

**European:** B01D61/02D B01D61/06 E03B3/00 E03B3/06 M02F1/44B



## Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2007291688 AA    | 20080306         | AU20070291688      | 20070830         |
| WO08025362 A1      | 20080306         | WO2007DK00390      | 20070830         |

## Priority:

DK20060001129 20060901 WO2007DK00390 20070830

**Probable Assignee:** DANFOSS AS

**Assignee(s):** (std): DANFOSS AS ; LAURSEN MICHAEL ; VALBJOERN ANDERS ; CLAUSEN PETER J M

**Assignee(s):** DANFOSS A S ; VALBJORN ANDERS

**Inventor(s):** (std): VALBJORN ANDERS ; VALBJOERN ANDERS ; CLAUSEN PETER J M ; LAURSEN MICHAEL

**Inventor(s):** PETER J M CLAUSEN ; MICHAEL LAURSEN ; ANDERS VALBJORN

**Agent(s):** WATERMARK PATENT AND TRADE MARKS ATTORNEYS; WATERMARK INTELLECTUAL PROPERTY PTY LTD; DANFOSS A/S

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

# 12) Family number: 67150176 (US2019030661A)

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**Title:** METHOD FOR REPURPOSING A SHIPPING CONTAINER INTO A REFRIGERATED COLD BOX

**Abstract:** A method for repurposing a shipping container into a refrigerated cold box includes the steps of cleaning the inside and outside of the shipping container. The inside and outside of the shipping container are then primed after removal of all rust. The interior of the shipping container is then framed into one or more compartments. Foam insulation is then sprayed within the interior of compartment(s) to a predetermined depth and walls and flooring are installed with plywood covered in stainless steel sheeting. Finally, the interior and exterior of the shipping container is painted with a ceramic paint to further increase its insulative properties.

## Classifications:

**International (IPC 8-9):** B23P15/26 B65D47/20 C02F9/00 E03B3/28

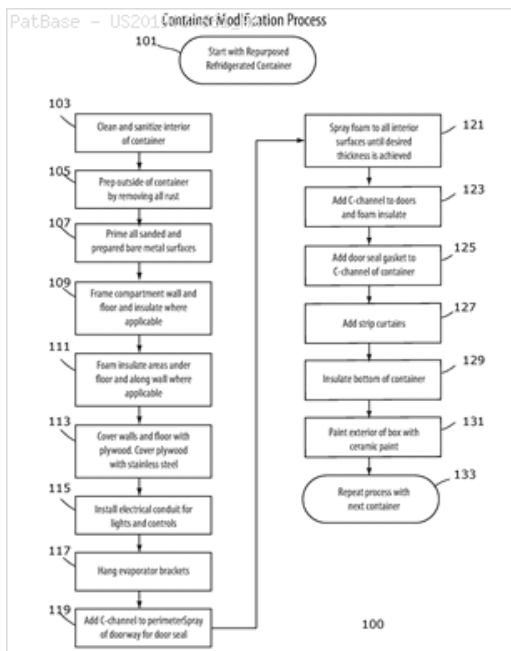
F02B63/04 F02D29/06 F02D41/02 F02N11/08 F25D11/00 H02J3/14

H02J7/14 H02J9/06 H02J9/08 H02M7/00 (Advanced/Invention)

**CPC:** C02F9/00 C02F1/004 E03B3/28 B23P15/26 F25D11/003

C02F1/283 C02F1/325 C02F1/68 C02F2201/009 C02F2201/3222

C02F2201/3227 C02F2301/08 C02F9/005 F25D23/064 B65D90/06  
F02B63/04 F02D29/06 F02D41/021 F02N11/0818 F02N11/0825  
F02N11/0862 F02N2200/063 Y02T10/48  
US: 1/1 210/202 29/890.035



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2019030661 AA    | 20190131         | US20180148729      | 20181001         |
| US2019031546 AA    | 20190131         | US20180148694      | 20181001         |
| US2019113014 AA    | 20190418         | US20170090511      | 20170403         |
| WO17173438 A2      | 20171005         | WO2017US25716      | 20170403         |
| WO17173438 A3      | 20180208         | WO2017US25716      | 20170403         |

#### Priority:

|                         |                         |                         |
|-------------------------|-------------------------|-------------------------|
| US20160317141P 20160401 | US20160317155P 20160401 | US20160317176P 20160401 |
| US20160317191P 20160401 | US20170090511 20170403  | WO2017US25716 20170403  |
| US20180148694 20181001  | US20180148729 20181001  |                         |

**Probable Assignee:** ALDELANO IP HOLDINGS LLC

**Assignee(s):** (std): ALDELANO IP HOLDINGS LLC

**Inventor(s):** (std): STERRETT J DOUGLAS ; HOLLINGSWORTH ALFRED ; GOODWYN MICHAEL ; SMITH NICOLE ; RAKESTRAW NICHOLAS ; BURRELL LAWRENCE

**Inventor(s):** STERRETT J

**Agent(s):** SCUTCH III FRANK M

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 13) Family number: 63677176 (WO16153991A3)

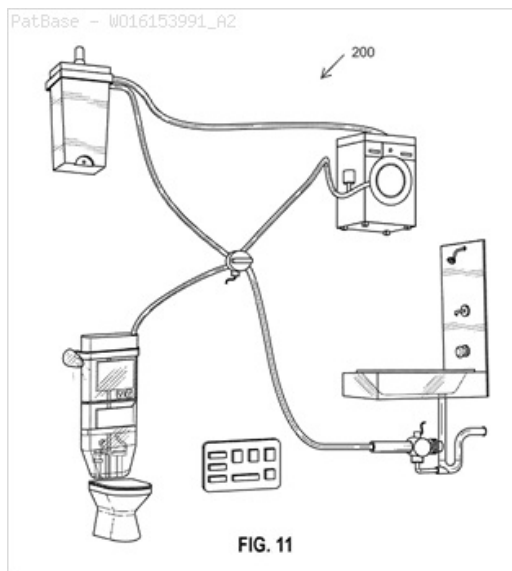
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**Title:** SYSTEMS FOR COLLECTING RAINWATER AND RECYCLING GREY WATER

**Abstract:** Systems for water collection and recycling are described herein. A downspout having a downspout groove is vertically disposed on an exterior wall. Electrical wiring that is operatively connected to at least one electrical power generator is disposed along the downspout groove. The downspout and electrical power generator are supported by downspout brackets. The downspout is fluidly connected to a gutter and an outdoor water storage tank for collecting rain water. A water pump moves grey water from a shower tub drainage pipeline to a water path switch valve. A control switch directs the water path switch valve to divert the grey water to a toilet storage tank, an outdoor water storage tank, or a washing machine water tank.

#### Classifications:

**International (IPC 8-9):** E03B1/04 E04D13/08 (Advanced/Invention)  
**CPC:** E04D2013/084 E03B1/042 E03B1/044 E03B3/03 E03B2001/047 E03D5/003 F03B13/00 F05B2220/602 F05B2220/604 F05B2240/9112 Y02A20/104 Y02A20/106 Y02A20/108 Y02A20/302 Y02A20/304 Y02B10/50 E04D13/08 C02F1/003 E04D2013/0813 E04D2013/082 E04D2013/0853 E04D2013/086 E04D2013/0873 E04D2013/0893



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| WO16153991 A2      | 20160929         | WO2016US23116      | 20160318         |
| WO16153991 A3      | 20161103         | WO2016US23116      | 20160318         |

#### Priority:

US20150136000P 20150320 US20150926971 20151029

**Probable Assignee:** CASEY DANIEL P

**Assignee(s):** (std): CASEY DANIEL P

**Inventor(s):** (std): CASEY DANIEL P

**Agent(s):** NGUYEN QUAN

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 14) Family number: 71831177 (CN108793579A)

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**Title:** RAINWATER TREATMENT EQUIPMENT

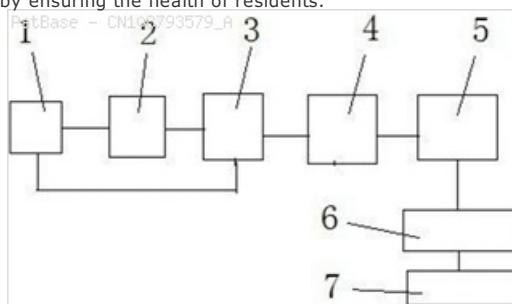
**Abstract:** The invention discloses rainwater treatment equipment. The equipment includes a sewage interception hanging basket well, a rainwater flow device, a rainwater automatic filtration device, a water collecting and lifting tank, an SBBR biological filter tank, a UASB anaerobic tank and an aerated water storage tank which communicate in order. The water collecting and lifting tank is provided with an overflow ridge and a submersible pump leading to the SBBR biological filter tank. The SBBR biological filter tank is provided with a jet aerator communicating with the submersible pump. An ultraviolet disinfection device is arranged in the aerated water storage tank. According to the invention, the SBBR biological filter tank and the UASB anaerobic tank purify rainwater, the rainwater flow device and the overflow ridge of the water collecting and lifting tank can discharge flood when the amount of the rainwater is large, and the rainwater sterilized by the ultraviolet disinfection device can be used as public water of a community, thereby ensuring the health of residents.

#### Classifications:

**International (IPC 8-9):** C02F9/14 E03B3/02 (Advanced/Invention)

**CPC:** C02F9/00 C02F1/001 C02F1/32 C02F3/06 C02F3/2846

C02F2003/001 C02F2103/001 C02F2303/04 E03B3/02



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN108793579 A      | 20181113         | CN201710283057     | 20170426         |

#### Priority:

CN201710283057 20170426

**Probable Assignee:**

WAN XIANGFENG

**Assignee(s):** (std):

WAN XIANGFENG

**Assignee(s):**

WANXIANG WIND

**Inventor(s):** (std):

WAN XIANGFENG

**Title:** POTABLE WATER PURIFIER FOR PRESSURISED SYSTEMS FOR BUILDINGS

**Abstract:** A system of purifying water in a pressurised system using a venturi to contact a chemical with the water, the system having a main water line from inlet (5) to faucet (15) and including a bypass loop (13) incorporating the venturi (6) to add the chemical to the water, a pump (12) in the bypass loop (13) to pass water through bypass loop (13) at constant pressure whereby the venturi (6) delivers the chemical at a constant rate irrespective of the variation of water pressure in the main water line (5) due to opening and closing of the faucet.

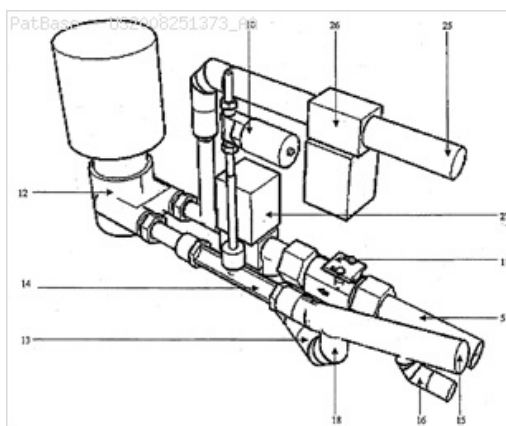
**Classifications:**

**International (IPC 8-9):** C02F1/04 C02F1/72 C02F1/78 E03B7/04 E03B7/07 E03C1/046 E03C1/10 (Advanced/Invention); C02F1/04 C02F1/72 C02F1/78 E03B7/00 E03C1/04 E03C1/10 (Core/Invention)

**CPC:** A61L2/035 C02F1/4672 C02F1/78 C02F2201/782 C02F2301/043 E03B7/006 F24D17/0073 Y02A20/411

**European:** A61L2/03E C02F1/467B C02F1/78 E03B7/00C F24D17/00H M02F201/782 M02F301/04B

**US:** 203/11 203/11P

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2005297332 AA    | 20060427         | AU20050297332      | 20051021         |
| US2008251373 AA    | 20081016         | US20050577686      | 20051021         |
| WO06042373 A1      | 20060427         | WO2005AU01636      | 20051021         |

**Priority:**

AU20040906072 20041021 AU20050297332 20051021 WO2005AU01636 20051021

**Probable Assignee:** ECOZONE PTY LTD

**Assignee(s):** (std): ECOZONE PTY LTD ; OKE SIMON FORBES ; OZONE MFG PTY LTD

**Assignee(s):** OZONE MANUFACTURING PTY LTD

**Inventor(s):** (std): OKE SIMON FORBES

**Inventor(s):** SIMON FORBES OKE

**Agent(s):** ECOZONE PTY LTD; AKERMAN SENTERFITT

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KP KR KZ LC LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**Title:** RECYCLING SYSTEM FOR MIDDLE-STAGE RAINWATER IN FACTORY AREA

**Abstract:** The invention relates to recycling of collected and treated rainwater by tire production enterprises. A recycling system for middle-stage rainwater in a factory area comprises a primary treatment system, a secondary treatment system and a water cycling system which are connected sequentially, wherein the primary treatment system comprises a well, a pipe network, a primary filter device and an early-stage rainwater pool which are connected sequentially; the secondary treatment system comprises a filtration and adsorption device, a middle-stage rainwater pool, a lifting pump and an integrated water purifier; the water cycling system comprises an industrial water tank to facilitate utilization at the later stage. The primary treatment system collects and filters the rainwater, the secondary treatment system performs secondary treatment on the rainwater passing through the primary treatment system, the rainwater can reach the purification standard and is collected, and water is softened through the water cycling treatment to reach the tire production water standard. The system is simple in structure and easy to operate.

**Classifications:**

**International (IPC 8-9):** C02F9/04 E03B3/02 (Advanced/Invention)

**CPC:** Y02A20/108 C02F9/00 C02F1/001 C02F1/283 C02F1/50 C02F1/5281 C02F2103/001 C02F2301/08 E03B3/02

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN107162280 A      | 20170915         | CN201710601551     | 20170721         |

**Priority:**

CN201710601551 20170721

**Probable Assignee:** HEFEI WANLI TIRE CO LTD

**Assignee(s):** (std): HEFEI WANLI TIRE CO LTD

**Assignee(s):** HEFEI WANLI TIRE CO

**Inventor(s):** (std): CHENG XIAOHUA ; HE YUFENG ; LI BIN ; SHI ZHENG ; WANG ZHONGWEN ; ZOU YE

**Title:** ELUTION SYSTEMS FOR TREATMENT OF DISTRESSED WATERS

**Abstract:** Disclosed herein is an elution device comprising one or more inlets and one or more outlets and defining an interior volume comprising steel slag, wherein the elution device is mounted to a support and situated substantially above ground level. One or more inlets and one or more outlets are disposed to facilitate fluid flow from an inlet toward an outlet to cause contact of the eluant with the slag for a period sufficient to form an eluate. Also disclosed herein are methods of applying an eluant to the elution device and dispensing an eluate from an outlet proximal to a distressed water source to form a treated water source. Also disclosed herein are methods of applying an eluant to the elution device and dispensing an eluate from an outlet proximal to one or more areas having living plants thereon or therein.

**Classifications:**

**International (IPC 8-9):** B01D17/025 B01D21/24 B03B5/28

B03D3/00 C02F1/00 C02F1/24 C02F1/28

E04D13/08 (Advanced/Invention)

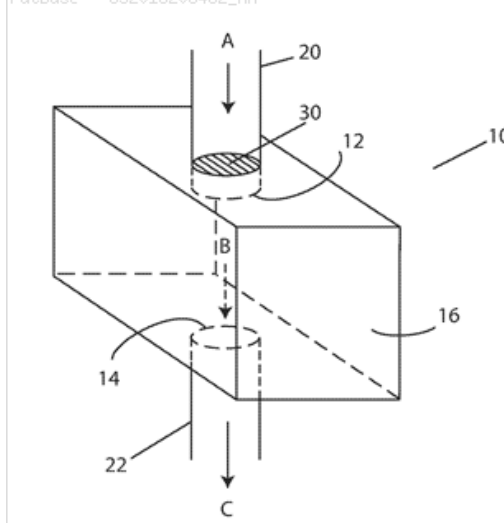
**CPC:** B03D3/00 Y02W10/37 E04D2013/0873 Y02A20/104 C02F1/281

B01D21/24 C02F1/004 C02F2101/105 C02F2103/001 C02F2103/06

C02F2201/008 E03B3/03 E04D13/08 E04D2013/086

**US:** 1/1 210/660

PatBase - US2018208482\_AA

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP3322496 A1       | 20180523         | EP20160825164      | 20160714         |
| EP3322496 A4       | 20181226         | EP20160825164      | 20160714         |
| US2018208482 AA    | 20180726         | US20160745170      | 20160714         |
| WO17011642 A1      | 20170119         | WO2016US42249      | 20160714         |

**Priority:**

US20150193202P 20150716

US20160745170 20160714

WO2016US42249 20160714

**Probable Assignee:** PHOENIX SERVICES LLC

**Assignee(s):** (std): PHOENIX SERVICES LLC

**Inventor(s):** (std): GRUBB DENNIS G

**Agent(s):** VALEA AB; SARAGENO LORI P ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**18) Family number: 65717189 (CN106677444A)**

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**Title:** RAINWATER TREATMENT SYSTEM AND RAINWATER TREATMENT CONSTRUCTION METHOD FOR HOUSE ROOF

**Abstract:** The invention discloses a rainwater treatment system and a rainwater treatment construction method for a house roof. The rainwater treatment system comprises a rainwater collection pipe network, a rainwater stand pipe, a rotational flow filter device, a rainwater collection pool and rainwater fetching systems. The rainwater collection pipe network comprises flashings and a rainwater collection tank. The rainwater fetching systems are internally provided with rainwater fetching pipes and pressure control pumps. The rainwater treatment construction method comprises the steps of (a), paving of the flashings; (b), mounting of the rainwater collection tank on the roof; (c), mounting of the rainwater stand pipe on a wall; (d), excavation of a foundation pit; (e), mounting of the rotational flow filter device in the foundation pit; (f), arrangement of the rainwater collection pool; and (g), mounting of the rainwater fetching systems into the rainwater collection pool. The rainwater treatment system and the rainwater treatment construction method are used for collecting, filtering, purifying, storing and utilizing rainwater on the roof and can be used for an undrinkable water environment, the resource utilization efficiency of the rainwater is improved, waste is turned into wealth, water resource shortage is relieved, the construction steps are simple and low in difficulty, the construction quality is easy to control, the construction cost is low, and the number of involved construction equipment is small.

**Classifications:**

**International (IPC 8-9):** C02F9/14 E03B3/02 E04D13/04

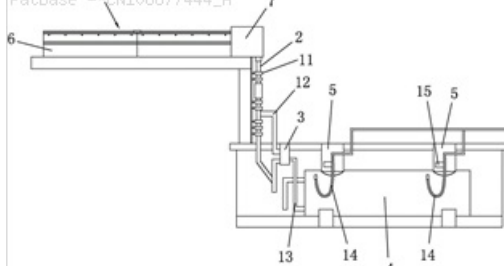
E04D13/08 (Advanced/Invention)

**CPC:** Y02A20/108 Y02A20/154 C02F1/001 C02F3/34 C02F7/00

C02F9/00 C02F2103/001 E03B3/02 E04D13/0404 E04D13/0481

E04D13/08 E04D2013/0495

PatBase - CN106677444\_A

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN106677444 A      | 20170517         | CN201611101173     | 20161202         |

**Priority:**

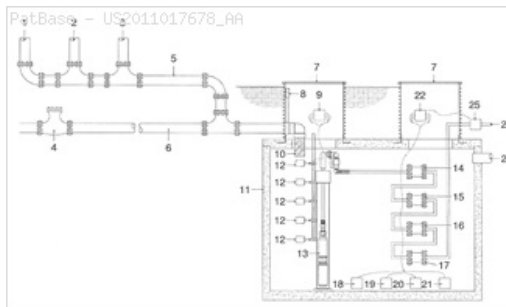
CN201611101173 20161202

**Probable Assignee:** UNIV ZHEJIANG WATER RESOURCES AND ELECTRIC POWER**Assignee(s):** (std): UNIV ZHEJIANG WATER RESOURCES AND ELECTRIC POWER**Assignee(s):** ZHEJIANG UNIV OF WATER RESOURCES AND ELECTRIC POWER**Inventor(s):** (std): LIU XUEYING ; MAO JIANGSHENG**19) Family number: 48202210 (US2011017678A)**

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**Title:** PROCESS FOR RAIN WATER, HVAC CONDENSATE AND REFRIGERATION BLOWDOWN/BLEED BLOWDOWN/BLEED WATER RECOVERY, WATER QUALITY MONITORING, REAL TIME WATER TREATMENT AND UTILIZATION OF RECOVERED WATER

**Abstract:** The present invention includes capturing water from rain, HVAC condensate and refrigeration blowdown/bleed blowdown that is recycled and reutilized in integrated mechanical processes. Water is monitored for volume, flow rate, and contaminants; and automatically cleaned through filtration and/or chemical and/or biological treatment techniques to meet acceptable health and safety standards for engineered end uses. The process components are integrated into an engineered system that includes: 1) water collection from air conditioning and refrigeration units and rain water; 2) custom design, engineering and implementation of a real time and/or scheduled water monitoring for water volume and water quality; 3) custom design, engineering and implementation of a real time and/or scheduled water treatment system to ensure water quality standards are met with respect to the end use of the recovered water; and 4) utilization of the recovered water by an engineered water distribution system.

**Classifications:****International (IPC 8-9):** B01D5/00 B01D65/00 C02F1/00 C02F1/04 C02F9/02 G05B19/00 (Advanced/Invention)**CPC:** Y02W10/37 C02F1/008 E03B1/042 E03B3/00 G05B19/0428 G05B2219/2625 Y02A20/302**European:** C02F1/00T E03B1/04B2 E03B3/00 G05B19/042S S05B219/2625**US:** 210/138 210/141 210/739 210/739P 210/747 210/747.3 210/747.300S 210/747.7 210/747.700S 210/85 210/85S**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2011017678 AA    | 20110127         | US20100840894      | 20100721         |
| WO11011134 A2      | 20110127         | WO2010US39096      | 20100617         |
| WO11011134 A3      | 20110421         | WO2010US39096      | 20100617         |
| WO11011560 A1      | 20110127         | WO2010US42820      | 20100721         |

**Priority:**

US20090271603P 20090723 US20100840894 20100721

**Probable Assignee:** ANDERSON DENNIS MICHAEL**Assignee(s):** (std): ANDERSON DENNIS M ; ANDERSON DENNIS MICHAEL ; ANDERSON DEVON ERIC ; LORENZ KENNETH R**Inventor(s):** (std): ANDERSON DENNIS MICHAEL ; ANDERSON DEVON ERIC ; LORENZ KENNETH R ; ANDERSON DENNIS M**Agent(s):** DENNIS M ANDERSON; AOKI MARGIE B

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**20) Family number: 12341236 (DE19522433A1)**

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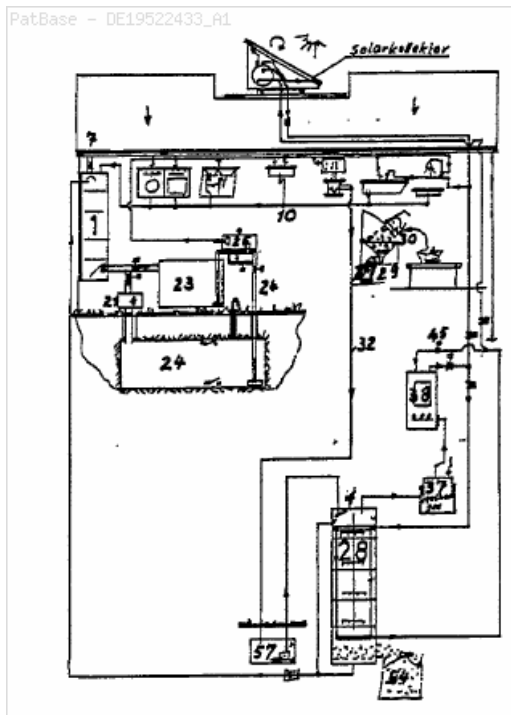
**Title:** COMBINED DOMESTIC WASTE WATER AND ORGANIC REFUSE TREATMENT SYSTEM

**Abstract:** Combined household waste water and solid waste treatment installation collects rainwater and water discharged from baths, showers, washbasins and washing machines into a closed water treatment plant (1). In the plant the water passes through a distributor assembly (11) and is forced to form droplets, which then pass through and are cleaned by different gravel filters (12). The water is processed in ion exchange units (17,18) and is then aerated (14) by oxygen. It is finally passed through a stainless steel wool filter (19) before it is returned to a water storage tank (23) for repeated use in the domestic supply (26).

**Classifications:****International (IPC 8-9):** C02F3/04 C05F17/02 C05F3/04 E03B1/04 (Advanced/Invention);

C02F3/04 C05F17/02 C05F3/00 E03B1/00 (Core/Invention)

**International (IPC 1-7):** B09B5/00 C02F1/00 C02F11/00 C02F3/00 C05F9/02 C05F9/04 E03C1/01**CPC:** C02F3/04 C05F3/04 C05F17/986 E03B1/04 E03B2001/045 E03B2001/047 Y02A20/108 Y02A40/207 Y02E50/343 Y02P20/134 Y02P20/145 Y02W10/15 Y02W10/37 Y02W30/43 Y02W30/47**European:** C02F3/04 C05F17/02K2E C05F3/04 E03B1/04 P03B1/04B20 P03B1/04B22

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE19522433 A1      | 19970102         | DE19951022433      | 19950621         |

**Priority:**

DE19951022433 19950621

**Probable Assignee:** KRESSE REINER**Assignee(s):** (std): KRESSE REINER**Assignee(s):** KRESSE REINER 61348 BAD HOMBURG DE**21) Family number: 60649255 (EP2937127A1)**

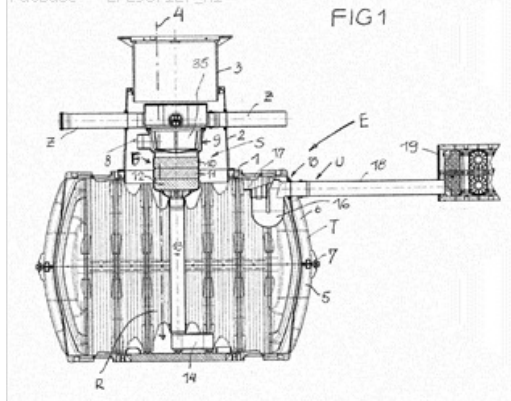
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**Title:** DEVICE FOR THE TREATMENT OF PRECIPITATION WATER DISPOSITIF DE TRAITEMENT DE L'EAU DE PLUIE </TI\_FR

**Abstract:** Source: EP2937127A1 [DE] In einer Einrichtung (E) zur Behandlung von Niederschlagswasser, mit Zu- und Ablauf und einem zumindest Schwermetalle adsorbierenden Filtersubstrat (S) aus Zeolithen und/oder Eisenoxiden und/oder Eisenhydroxiden und/oder Steinen oder dgl. im Stromungsweg, ist das Filtersubstrat (S) zulauf- oder ueberlaufseitig in einem mehrstufigen Filtersystem (F) in einen Erdtank (T) eingegliedert, der einen dem Filtersubstrat (S) zugeordneten Sedimentationsraum (R) bildet. **Machine translation:** In a device (E) for the treatment of rainwater, with inlet and outlet, and an at least heavy metals adsorbing filter substrate (S) of zeolites and / or iron oxides and / or hydroxides and / or stones or the like. in the flow path, is the filter substrate (S) inlet or overflow each other in a multi-stage filter system (F) in an underground tank (T) incorporated which forms the filter substrate (S) associated sedimentation space (R).

**Classifications:****International (IPC 8-9):** B01D21/00 B01D21/24 C02F1/00 E03B3/03 E03F5/14 (Advanced/Invention)**CPC:** B01D21/0012 B01D21/2405 B01D21/2427 B01D21/2444 B01D2221/12 C02F1/001 E03B3/03 E03F5/14 C02F1/281 C02F2101/20 C02F2103/001 Y02A20/108

PatBase - EP2937127\_A1

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP2937127 A1       | 20151028         | EP20140165543      | 20140423         |

**Priority:**

EP20140165543 20140423

**Probable Assignee:** OTTO GRAF GMBH KUNSTSTOFFERZEUGNISSE**Assignee(s):** (std): OTTO GRAF GMBH KUNSTSTOFFERZEUGNISSE**Inventor(s):** (std): GRAF OTTO P**Agent(s):** GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB

**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO  
PL PT RO RS SE SI SK SM TR

**22) Family number: 72890264** (CN109235537A)

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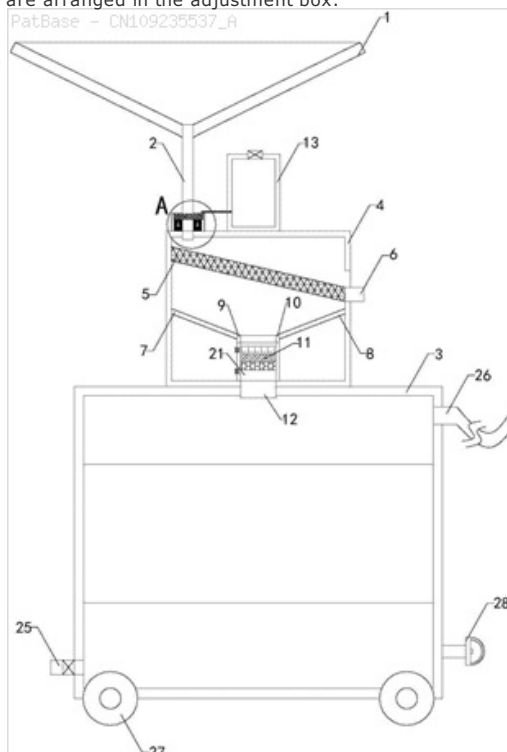
**Title:** RAINWATER COLLECTING DEVICE FOR LANDSCAPING

**Abstract:** The invention relates to the technical field of garden management accessory devices, in particular to a rainwater collecting device for landscaping. The device can filter rainwater, improve the use effect of rainwater and improve the use reliability. And can carry on the effective disinfection to the rainwater, reduces the follow-up treatment the working procedure, expands the rainwater the use scope. The impurities in the rainwater can be automatically removed to improve the practicability; Include a collecting plate, Water diversion pipes, water storage tanks and filter tanks, A place chamber is arranged inside the filter box, the top end and the bottom end of the drinking water pipe are communicated with a collecting plate and a filter tank respectively, a filter screen, a left guide plate, a right guide plate, a left splint, a right splint and a filter combination are arranged in the placing chamber, the bottom end of the filter box is communicated with the water storage tank through a communication pipe, and further comprises a disinfection box and an adjustment box. The left end of the disinfection box is provided with a disinfection tube protruding into the inside of the adjustment box, and two sets of springs, two sets of guide posts, two sets of guide sleeves and a sealing plate are arranged in the adjustment box.

**Classifications:**

**International (IPC 8-9):** C02F9/04 E03B3/02 (Advanced/Invention)

**CPC:** E03B3/02 C02F1/001 C02F1/283 C02F1/42 C02F1/50 C02F9/00 C02F2001/425 C02F2103/001



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ■ CN109235537 A    | 20190118         | CN201811032792     | 20180905         |

**Priority:**

CN201811032792 20180905

**Probable Assignee:** YANCHENG GUORUIXIN TECH CO LTD

**Assignee(s):** (std): YANCHENG GUORUIXIN TECH CO LTD

**Assignee(s):** YANCHENG GUORUIXIN TECHNOLOGY CO ; YANCHENG NATIONAL RUI LETTER TECHNOLOGY CO LTD

**Inventor(s):** (std): CAI YUAN

**23) Family number: 63894305** (CN106049600A)

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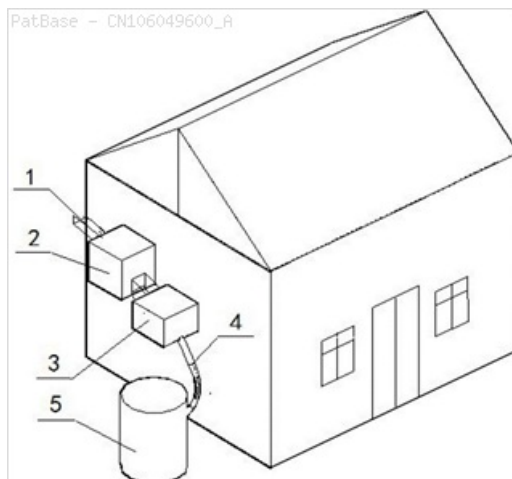
**Title:** HOUSE WATER COLLECTION AND TREATMENT DEVICE

**Abstract:** The invention discloses a house water collection and treatment device, which comprises a liquid collection runner, a primary treatment system, a secondary treatment system, a liquid guidance pipeline and a water collection tank. The structure of the primary treatment system is represented as a hollowed tank body which is mainly composed of a filter screen, wherein the filter screen is connected to the tank body by virtue of a guide rod; lead grooves are formed in two ends of the tank body; the filter screen is capable of rotating around an axis along the lead grooves; a water outlet is formed in the lower end of the tank body. The structure of the secondary treatment system is represented as a hollowed tank body as well, and three filter layers are arranged in the hollowed tank body; a round water outlet hole is formed in the lower end of the tank body; the water outlet hole is connected to the liquid guidance pipeline; and by virtue of the liquid guidance pipeline, treated water is stored in the water collection tank. The house water collection and treatment device disclosed by the invention has the beneficial effects that a vertical wall surface serves as a rain collection face, and rainwater is subjected to collection and dual-filtration, so that the rainwater is treated into domestic water for a family in daily life, and the utilization of a water source is achieved to the greatest extent; and the house water collection and treatment device not only has a significant water-saving benefit but also has obvious social and environmental benefits.

**Classifications:**

**International (IPC 8-9):** C02F1/00 E03B3/02 (Advanced/Invention)

**CPC:** E03B3/02 C02F1/001 Y02A20/108



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN106049600 A      | 20161026         | CN201610333121     | 20160519         |
| CN106049600 B      | 20181228         | CN201610333121     | 20160519         |

#### Priority:

CN201610333121 20160519

#### Probable Assignee:

DING GUOZHONG

#### Assignee(s): (std):

DING GUOZHONG

#### Inventor(s): (std):

DING GUOZHONG

#### 24) Family number: 6297315 (FR2662454A)

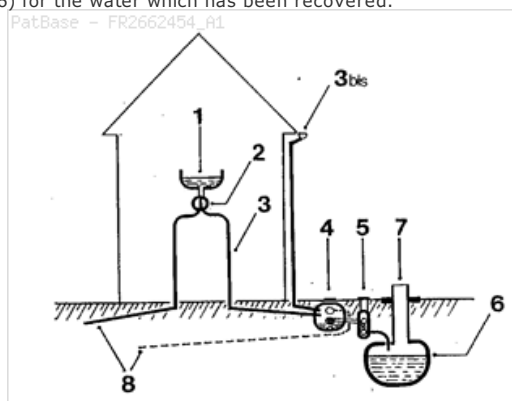
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**Title:** DEVICE FOR SELECTION/RECOVERY/STORAGE OF PARTIALLY USED WATER AND RAINWATER

**Abstract:** The invention relates to a device for the selective recovery of partially used water and rainwater, which device comprises a selector/inverter (2) at all or some of the run-off points of the domestic collecting drains (1), a general collecting drain (4) equipped with a filtering system (5), and a storage vessel (6) for the water which has been recovered.

#### Classifications:

**International (IPC 8-9):** C02F1/00 C02F9/00 E03B1/04  
E03F1/00 (Advanced/Invention);  
C02F1/00 C02F9/00 E03B1/00 E03F1/00 (Core/Invention)  
**International (IPC 1-7):** B01D101/00 B01D24/14 C02F1/00  
E03B7/07  
**CPC:** Y02A20/108 E03F1/00 C02F1/004 C02F1/283 C02F2103/001  
C02F2103/002 C02F2301/08 C02F2303/02 E03B1/04 E03B2001/045  
E03B2001/047  
**European:** C02F1/00D6 C02F1/28D E03B1/04 E03F1/00  
M02F103/00B M02F103/00C M02F301/08 M02F303/02 P03B1/04B20  
P03B1/04B22



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR2662454 A1       | 19911129         | FR19900006681      | 19900525         |
| FR2662454 B1       | 19920911         | FR19900006681      | 19900525         |

#### Priority:

FR19900006681 19900525

#### Probable Assignee:

RON SIN JEAN CLAUDE

#### Assignee(s): (std):

RON SIN JEAN CLAUDE

#### Inventor(s): (std):

CLAUDE RONSIN JEAN

#### Inventor(s):

RON SIN JEAN CLAUDE

#### 25) Family number: 48390328 (US2011053487A)

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**Title:** VENT COVER AND LOUVER ASSEMBLY

**Abstract:** A vent cover and louver assembly includes a housing with a perimeter wall having a first edge and a second edge each defining an opening through which air may be passed through an air passageway of the perimeter wall. Each of a plurality of slats is rotatably mounted to the perimeter wall and traverses the air passageway. The slats are positionable in a closed position or in an open position. A motor is mechanically coupled to each of the slats to move the slats to the closed position or to the open position. A rechargeable battery is electrically coupled to the motor. An electricity producing apparatus is mounted on the housing and is electrically coupled to the battery. The electricity producing apparatus is actuated by air moving through the housing to produce electricity. An interface is in communication with the motor to allow a user to

actuate the motor.

**Classifications:**

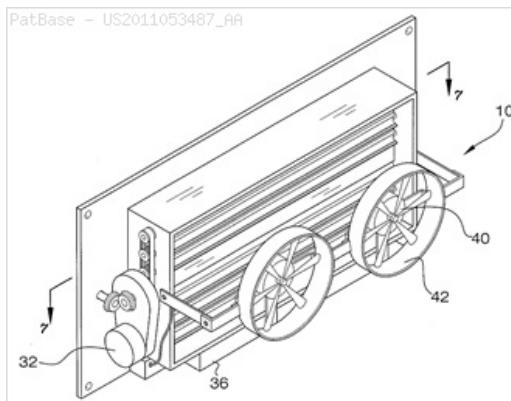
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**CPC:** F24F13/1426 F24F13/14 G08B17/10 H05K5/0217 H05K5/0213 F24F11/0001 F24F13/082 F24F13/15 F24F2013/1446 F24F11/46 F24F11/30 F24F2110/10 E04D13/08 C02F1/003 E04D2013/082 E04D2013/086 E04D2013/0813 E04D2013/0853 E04D2013/0873 E04D2013/0893 E03B1/042 E03B1/044 E03B3/03 E03B2001/047 E03D5/003 E04D2013/084 F03B13/00 F05B2220/602 F05B2220/604 F05B2240/9112 Y02A20/104 Y02A20/106 Y02A20/108 Y02A20/302 Y02A20/304 Y02B10/50

**European:** F24F13/08C R24F11/00R5M R24F13/14D3

**US:** 312/257.1 312/306 454/256 454/257 454/258 454/258P 454/314 454/318 454/319 454/325 454/335 454/335S

PatBase - US2011053487\_AA



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CA2907531 AA       | 20150917         | CA20132907531      | 20130319         |
| CA2907531 C        | 20190709         | CA20132907531      | 20130319         |
| DE602013037271 D1  | 20180607         | DE201360037271T    | 20130319         |
| EP2844926 A2       | 20150311         | EP20130765224      | 20130319         |
| EP2844926 A4       | 20160113         | EP20130765224      | 20130319         |
| EP2844926 B1       | 20180509         | EP20130765224      | 20130319         |
| US2011053487 AA    | 20110303         | US20090551214      | 20090831         |
| US2013165037 AA    | 20130627         | US20120424045      | 20120319         |
| US2015079895 AA    | 20150319         | US20130386766      | 20130319         |
| US8979622 BB       | 20150317         | US20120424045      | 20120319         |
| US9803879 BB       | 20171031         | US20130386766      | 20130319         |
| US10132083 BA      | 20181120         | US20150926971      | 20151029         |
| WO11025747 A1      | 20110303         | WO2010US46389      | 20100823         |
| WO13142535 A2      | 20130926         | WO2013US33028      | 20130319         |
| WO13142535 A3      | 20131114         | WO2013US33028      | 20130319         |

**Priority:**

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|----------------|----------|----------------|----------|---------------|----------|
| US20090551214  | 20090831 | US20120424045  | 20120319 | US20120503326 | 20120420 |
| EP20130765224  | 20130319 | US20130386766  | 20130319 | WO2013US33028 | 20130319 |
| US20140122742P | 20141029 | US20150136000P | 20150320 | US20150926971 | 20151029 |

**Probable Assignee:** CASEY DANIEL P

**Assignee(s):** (std): CASEY DANIEL P

**Assignee(s):** CASEY DANIEL P SEATTLE

**Inventor(s):** (std): CASEY DANIEL P

**Inventor(s):** CASEY DANIEL P SEATTLE

**Agent(s):** RIDOUT AND MAYBEE LLP; HENZE LASSE; AWAPATENT A S; NGUYEN QUAN

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**26) Family number: 72770354 (WO19009709A1)**

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**Title:** GREY WATER TREATMENT SYSTEMS AND METHODS OF TREATING GREY WATER

**Abstract:** The invention relates to a grey water treatment system comprising: a first tank that is configured to receive grey water via a grey water supply conduit and that comprises an overflow; a second tank that is configured to store grey water; and at least one transfer conduit that is configured to at least transfer grey water between the first tank and the second tank; and a control that is configured to maintain a water level in said first tank sufficiently close to the overflow to allow floating contaminants to pass over the overflow. Furthermore, the invention relates to a method of treating grey water, comprising the steps of: receiving grey water in a first tank of a grey water treatment system; transferring grey water via at least one transfer conduit between the first tank and a second tank of said grey water treatment system; and controlling a water level in said first tank sufficiently close to an overflow of said first tank to allow floating contaminants to pass over the overflow.

**Classifications:**

**International (IPC 8-9):** C02F C02F1/32 C02F3/00 C02F3/12 C02F3/20 E03B1/04 E03D5/00 (Advanced/Invention); C02F1/32 C02F103/00 E03B1/04 E03D5/00 (Advanced/Non-invention); C02F (Subclass/Invention)

**CPC:** C02F1/32 C02F3/1242 C02F2103/002 E03B1/042 E03B1/041 E03B2001/045 C02F3/006 C02F3/20

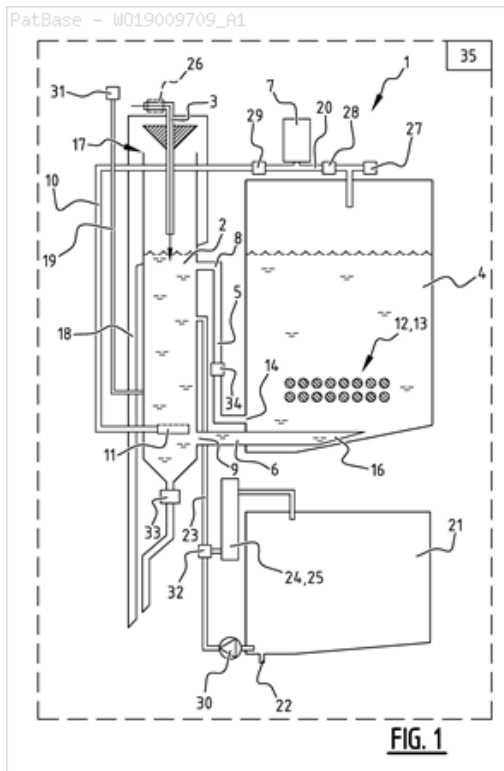


FIG. 1

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2018297054 AA    | 20200130         | AU20180297054      | 20180703         |
| IL271767 AA        | 20200227         | IL20180271767      | 20180703         |
| KR20200033867 A    | 20200330         | KR20207003189      | 20180703         |
| NL2019174 B1       | 20190114         | NL20172019174      | 20170704         |
| WO19009709 A1      | 20190110         | WO2018NL50429      | 20180703         |

**Priority:**

NL20172019174 20170704 WO2018NL50429 20180703

**Probable Assignee:** HYDRALoop INT BV**Assignee(s):** (std): HYDRALoop INT BV**Inventor(s):** (std): VALKIESER ARTHUR J L ; ARTHUR J L VALKIESER**Inventor(s):** ARTHUR J L VALKIESER ; VALKIESER ARTHUR J L**Agent(s):** GOLJA HAINES AND FRIEND; HAAN RAIMOND JOHANNES GERARDUS

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**27) Family number: 72890365** (CN109235539A)

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**Title:** RAINWATER COLLECTION AND REUSE DEVICE FOR BUILDING FLOORS

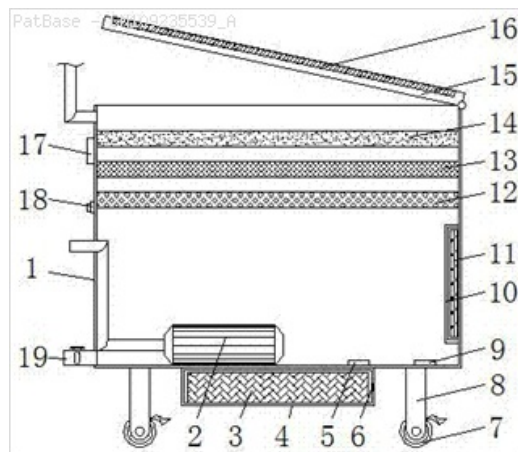
**Abstract:** The invention discloses a rainwater collection and reuse device for building floors. The device comprises a box body, wherein the upper end of the box body inner cavity is fixedly connected with a quartz sand filter screen, a HEPA filter screen and an activated carbon filter layer from top to bottom, and the lower end of the right side of the box body inner cavity is fixedly connected with an ultraviolet lamp tube. The quartz sand filter screen is fixedly connected with the quartz sand filter screen from top to bottom at the upper end of the cabinet inner cavity, HEPA filter screen and activated carbon filter layer, the rainwater flowing into the tank body from the pipe communicating with the preset drainage pipe of the floor can be filtered three times, An ultraviolet lamp tube is fixedly connected at that lower end of the right side of the cabinet lumen, so that the ultraviolet sterilization treatment can be carry out on the rainwater inside the cabinet, the filtering effect of the device to the rainwater is effectively improved, and the problem that rainwater is wasted due to the lack of a device for collect the rainwater flowing from the building floor in life is solved through the cooperation of the above structure.

**Classifications:****International (IPC 8-9):** B01D29/01 B01D29/58 C02F9/08

E03B3/02 (Advanced/Invention)

**CPC:** E03B3/02 B01D29/01 B01D29/58 C02F1/001 C02F1/32

C02F9/00 C02F2103/001 C02F2201/009 C02F2301/08



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN109235539 A      | 20190118         | CN201811085294     | 20180918         |

#### Priority:

CN201811085294 20180918

**Probable Assignee:** ZHENGZHOU XINGTAN ELECTRONIC TECH CO LTD

**Assignee(s):** (std): ZHENGZHOU XINGTAN ELECTRONIC TECH CO LTD

**Assignee(s):** ZHENGZHOU XINGTAN ELECTRONIC TECHNOLOGY CO ; ZHENGZHOU APRICOT ALTAR ELECTRONIC TECHNOLOGY CO LTD

**Inventor(s):** (std): XU JIAQING ; XU JIAKUN

#### 28) Family number: 65643391 (CN106639178A)

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**Title:** ROOF GARDEN RAINWATER DIVERSION PURIFICATION BOX

**Abstract:** The invention relates to a roof garden rainwater deep purification system capable of achieving automatic diversion and belongs to the field of sewage treatment. According to the technical scheme, the system comprises a plant box, a water storage tank, an initial rainwater purification module and a later rainwater purification box, and can conduct diversion on initial rainwater and later rainwater according to the amount of rainfall; the initial rainwater purification module comprises a filtering layer, a root-resistant layer, a filter element layer and a bearing layer, and can conduct deep purification on the initial rainwater; the later rainwater purification box conducts simple filtering on the later rainwater; the content of pollutants in the initial rainwater is high, deep filtering is needed, the content of pollutants in the later rainwater is low, and no deep filtering is needed. By means of a diversion mode, the initial rainwater is separated from the later rainwater, the rainwater treatment load of an initial rainwater filtering device is reduced, all modules in the purification system are mutually independent, assembly is simple, maintenance is convenient, and all the components can be quickly replaced and washed; the system consumes no energy, the rainwater treatment function is achieved and the system further has a landscape value.

#### Classifications:

**International (IPC 8-9):** A01G1/00 A01G9/02 C02F1/00 E03B3/02 E04D13/00 (Advanced/Invention)

**CPC:** E04D13/00 A01G9/02 C02F1/001 C02F2103/001 E03B3/02 Y02A20/108 A01G9/033



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN106639178 A      | 20170510         | CN201611082892     | 20161130         |

#### Priority:

CN201611082892 20161130

**Probable Assignee:** HUATIAN ENG AND TECH CORP MCC

**Assignee(s):** (std): HUATIAN ENG AND TECH CORP MCC ; HUATIAN NANJING ENG AND TECH CORP MCC ; HUATIAN NANJING ENGINEERING AND TECHNOLOGY CORP MCC ; MCC HUATIAN NANJING ENGINEERING AND TECHNOLOGY CORP ; MCC HUATIAN ENGINEERING AND TECHNOLOGY CORP

**Assignee(s):** HUATIAN NANJING ENGINEERING AND TECHNOLOGY MCC CORP ; HUATIAN ENGINEERING AND TECHNOLOGY MCC CORP

**Inventor(s):** (std): TANG ZHIQIANG ; YAO LIRONG ; ZHAN MAOHUA ; WU SHUYUAN ; CHENG HANFEI

#### 29) Family number: 77268405 (FR3083538A)

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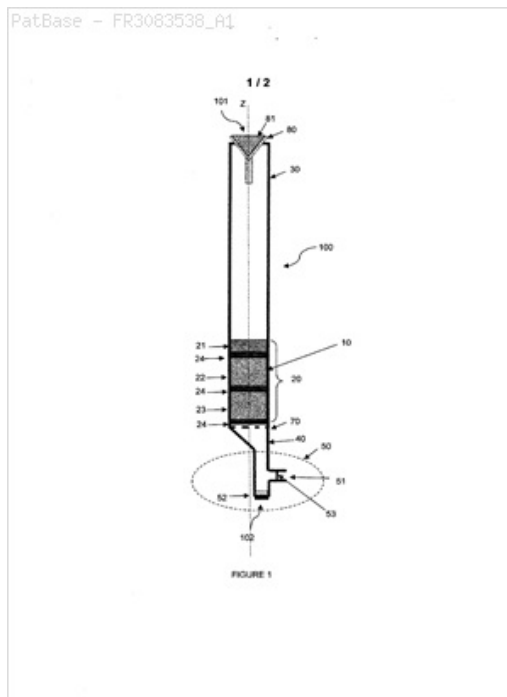
**Title:** DISPOSITIF POUR LA FILTRATION DES EAUX DE PLUIE OU DES EAUX USEES Device for FILTRATION OF RAINWATER OR WASTEWATER (Machine translation)

**Abstract:** Source: FR3083538A [FR] L'invention concerne un dispositif (100) pour la filtration des eaux de pluie ou des eaux usees, destine a etre positionne de sorte a permettre l'ecoulement desdites eaux en son sein, le dispositif (100) comprenant: - Un corps principal (10) s'etendant le long d'une direction principale d'elongation et comprenant un orifice d'entree (101) et un orifice de sortie (102); - Un bloc de filtration (20), dispose a l'interieur du corps principal (10). Il est essentiellement caracterise en ce que: - le diametre equivalent de l'orifice de sortie (102) est inferieur au diametre equivalent de l'orifice d'entree (101), - le bloc de filtration (20) comprend au moins une couche de granulats. **Machine translation:** The invention relates to a device (100) for the filtration of rainwater or wastewater, intended to be positioned so as to allow the flow of said

waters within it, the device (100) comprising: a main body (10) extending along a main direction of elongation and comprising an inlet (101) and an outlet (102); - a block of filtration (20), disposed within the main body (10). It is essentially wherein: the equivalent diameter of the outlet port (102) is less than the equivalent diameter of the inlet port (101), - the filtration block (20) comprises at least one layer of aggregates.

#### Classifications:

**International (IPC 8-9):** B01D25/02 C02F1/28 C02F103/06 C02F103/42 (Advanced/Invention);  
C02F103/06 C02F103/42 (Advanced/Non-invention)  
**CPC:** C02F1/001 C02F1/281 C02F1/283 C02F103/001 C02F103/002 E04D2013/086 E04D2013/0873 E03B2001/047 E03B3/02



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR3083538 A1       | 20200110         | FR20180000708      | 20180704         |

#### Priority:

FR20180000708 20180704

**Probable Assignee:** JEREMY VALENTIN SURRE  
**Assignee(s):** (std): SURRE JEREMY VALENTIN  
**Assignee(s):** JEREMY VALENTIN SURRE  
**Inventor(s):** (std): SURRE JEREMY VALENTIN  
**Inventor(s):** JEREMY VALENTIN SURRE  
**Agent(s):** JEREMY VALENTIN SURRE

#### 30) Family number: 60600427 (US2015299013A)

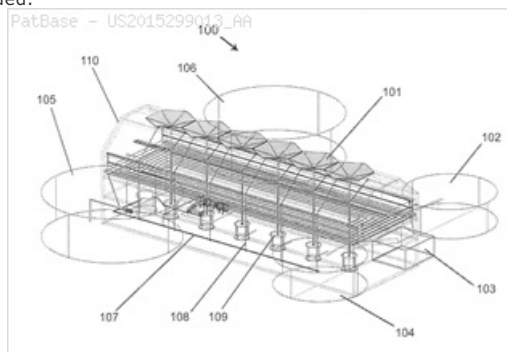
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**Title:** SOLAR DESALINATION AND POWER GENERATION PLANT

**Abstract:** A system for collecting solar energy and generating fresh water. The system may include a solar energy collection sub-system, a salt water distillation sub-system, and a cooling sub-system. The solar energy collection sub-system may further include one or more solar energy collection assemblies, which may heat a thermally-conductive fluid, which may be used to generate electricity. The salt water distillation sub-system may include a pump, piping, and a distillation cavity. A natural filtration and living flora/fauna sub-system may also be included.

#### Classifications:

**International (IPC 8-9):** B01D1/00 C02F1/04 C02F1/14 C02F3/00 C02F3/32 C02F9/00 E03B3/02 H01M10/36 H01M10/42 H01M10/44 H01M10/46 H01M10/48 H01M12/02 H01M2/16 H02J7/00 H02J7/35 (Advanced/Invention);  
C02F1/00 C02F103/08 C02F3/32 H01L31/0525 H02S40/44 (Advanced/Non-invention)  
**CPC:** C02F3/327 B01D1/0029 B01D1/0035 C02F1/004 C02F1/04 C02F1/048 E03B3/02 H01L31/0525 H02S40/44 Y02A20/128 Y02A20/129 Y02A20/142 Y02A20/212 Y02A40/966 Y02B10/20 Y02B10/70 H01L31/0547 H01M8/227 H02J3/383 Y02E10/563 C02F1/14 C02F2103/08 H01M10/482 H02J7/00 H02J7/35  
**US:** 1/1 202/172 202/176 202/185.3 202/234 203/10 210/182 210/602 320/107



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2015299013 AA    | 20151022         | US20140255404      | 20140417         |
| US2016344077 AA    | 20161124         | US20160229410      | 20160805         |
| US9884772 BB       | 20180206         | US20140255404      | 20140417         |

#### Priority:

US20140255404 20140417 US20160229410 20160805

**Probable Assignee:** DAKHIL FAROUK

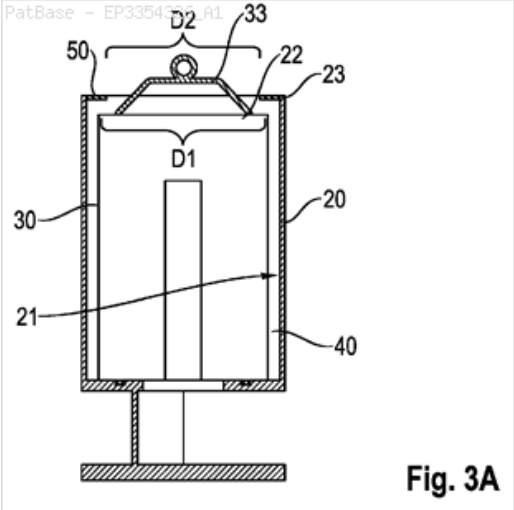
**Assignee(s):** (std): DAKHIL FAROUK  
**Inventor(s):** (std): DAKHIL FAROUK  
**Agent(s):** MAIER AND MAIER PLLC

**31) Family number: 70640441 (EP3354326A1)** © PatBase

**Title:** RAINWATER TREATMENT ASSEMBLY, CARTRIDGE CONTAINER, RAINWATER TREATMENT DEVICE, AND SUBSTRATE CARTRIDGE ENSEMBLE DE TRAITEMENT D'EAU DE PLUIE, RECIPIENT DE CARTOUCHE, DISPOSITIF DE TRAITEMENT D'EAU DE PLUIE ET CARTO

**Abstract:** Rainwater treatment assembly comprising a cartridge container (20) with a container inlet and a container outlet, and comprising a substrate cartridge (30). The substrate cartridge (30) includes a substrate for treating rainwater and has at least one top entrance for being fluidly connected to the inlet, at least one side entrance for being fluidly connected to the inlet, and at least one exit for being fluidly connected to the outlet. The cartridge container (20) is configured to accommodate the substrate cartridge (30) and is dimensioned such that when the substrate cartridge (30) is accommodated, an inflow space (40) for receiving fluid is defined outside of the substrate cartridge (30), adjacent to the side entrance, and in fluid communication with the container inlet. The rainwater treatment assembly comprises a fluid guider (50) for directing at least a part of a fluid directly towards the top entrance of the substrate cartridge (30).

**Classifications:**  
**International (IPC 8-9):** B01D29/33 B01D35/02 C02F1/00 E03B3/02 E03F5/04 (Advanced/Invention)  
**CPC:** E03F5/0404 C02F1/001 E03B3/02 C02F1/281 C02F1/283 C02F2101/20 C02F2101/32 C02F2103/001 C02F2201/006 Y02A20/108 B01D21/0003 B01D21/0012 B01D21/02



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP3354326 A1       | 20180801         | EP20180153690      | 20180126         |
| NL1042249 B1       | 20180807         | NL20171042249      | 20170127         |

**Priority:**

NL20171042249 20170127

**Probable Assignee:** WAVIN BV

**Assignee(s):** (std): WAVIN BV

**Inventor(s):** (std): BRUEMMER GUENTER ; DETERMANN MATTHIAS ; GUENTER BRUEMMER ; MATTHIAS DETERMANN

**Agent(s):** HOFFMANN EITL

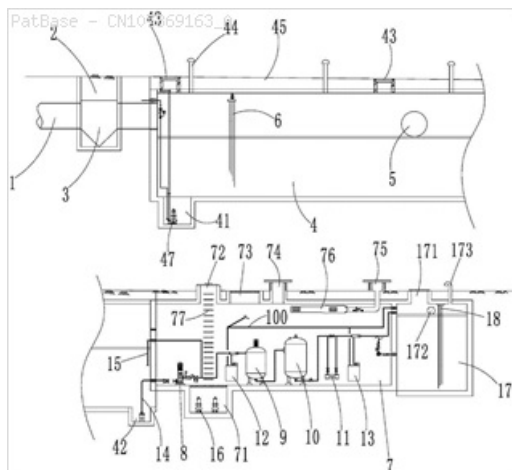
**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

**32) Family number: 69079458 (CN107869163A)** © PatBase

**Title:** RAINWATER STORAGE POOL SYSTEM

**Abstract:** The invention provides a rainwater storage pool system. The rainwater storage pool system comprises a buried rainwater collection pipe and a rainwater collection pool, the rainwater collection pool is communicated with the rainwater collection pipe through a rainwater inspection well, and a pollutant intercepting hanging basket is arranged in the rainwater inspection well. An equipment room and a clean water pool are arranged on the outer side of the rainwater collection pool, and a rainwater treatment system communicated with the rainwater collection pool and the clean water pool is arranged in the equipment room. The rainwater treatment system comprises a water intake pump, a flocculation reaction tank, a medium filter and an ultraviolet sterilizer, wherein the water intake pump, the flocculation reaction tank, the medium filter and the ultraviolet sterilizer are communicated in sequence, and an water outlet of the ultraviolet sterilizer is communicated with the clean water pool; a flocculent feeding device is arranged between the water intake pump and the flocculation reaction tank, and a disinfectant feeding device is arranged between the ultraviolet sterilizer and the clean water pool; the clean water pool is communicated with a municipal water supply network through a water supply pipe, and the municipal water supply network supplies water pressure for the flocculent feeding device and the disinfectant feeding device. According to the rainwater storage pool system, redundant rainwater is fully utilized to supplement urban water resources, fresh water resources are saved, and the system conforms to the idea of environment-friendly urban construction.

**Classifications:**  
**International (IPC 8-9):** C02F9/08 E03B11/00 E03B3/02 E03F5/10 E03F5/14 E03F5/22 (Advanced/Invention)  
**CPC:** E03B3/02 C02F1/001 C02F1/32 C02F1/52 C02F9/00 E03B11/00 E03F5/10 E03F5/14 E03F5/22 Y02A20/108



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN107869163 A      | 20180403         | CN201711157369     | 20171120         |

#### Priority:

CN201711157369 20171120

**Probable Assignee:** CHONGQING GREEN ENVIRONMENT PROTECTION TECH CO LTD

**Assignee(s):** (std): CHONGQING GREEN ENVIRONMENT PROTECTION TECH CO LTD ; CHONGQING UNIV ; UNIV CHONGQING

**Assignee(s):** GE LIN CHONGQING ENVIRONMENTAL PROTECTION TECHNOLOGY CO ; CHONGQING GREEN ENVIRONMENT PROTECTION TECHNOLOGY CO

**Inventor(s):** (std): CHAI HONGXIANG ; CHEN JUNYU ; LI GUO ; JIANG WEN ; HE QIANG ; LI KUN ; ZHENG WEI ; SHAO ZHIYU ; SUN TONG ; LI LI ; LI MINGXING ; LI YONG ; XU QIANG ; WANG XIANGYONG

### 33) Family number: 17723484 (DE29600579U1)

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**Title:** Rain water distilling plant for house and garden

**Abstract:** Source: DE29600579U1 [DE] (Claim 1) 1 dadurch gekennzeichnet t, dass die Kondensatablauf rinne 35 zum Austausch der Spülung der Kieselstein füllung 6 an beiden Enden aufschiebbar verschliessbar ist, dass der Rohranschluss 36 fuer Trinkwasser mit einem Feinlochblech abgedeckt ist, dass beide Seitenwangen der Kondensatablauf rinne 36 Abbiegungen nach seitwaerts und oben fuer spaeteres schliessen aufweisen zur Aufnahme von Einlegeteilen.

**Machine translation:** (Claim 1) 1 marked containers by t, that the condensate drain channel 35 to the exchange or flushing of the pebble filling 6 at both ends of push-closable, is that the pipe connection 36 for drinking water is covered with a finely perforated sheet that both side panels f the Kondensatablauf rinne 36 turns to the side and above have for close later to accommodate union ends.

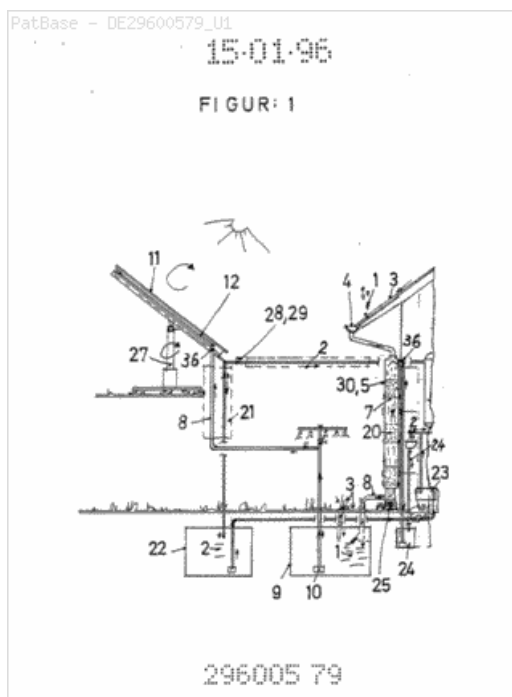
#### Classifications:

**International (IPC 8-9):** C02F1/14 E03B3/02 (Advanced/Invention); C02F1/14 E03B3/00 (Core/Invention)

**International (IPC 1-7):** C02F1/14 E03B3/02

**CPC:** C02F1/14 E03B3/02 Y02W10/37 Y02A20/108 Y02A20/212

**European:** C02F1/14 E03B3/02



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE29600579 U1      | 19960418         | DE19962000579U     | 19960115         |

#### Priority:

**Probable Assignee:** FISCHER REINHOLD  
**Assignee(s):** (std): FISCHER REINHOLD  
**Assignee(s):** FISCHER REINHOLD 61118 BAD VILBEL DE

**34) Family number: 47453496** (US2012037234A)

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**Title:** GREY WATER RECYCLING APPARATUS AND METHODS

**Abstract:** A water recycling system that can be used for reclaiming and recycling water, waste water, or grey water, for providing landscape irrigation, or for recycling uses such as for sanitary facilities, as well as for pre-heating clean water to save energy. A water recycling system may include a sealable tank, an influx pipe, a self-clearing filter disposed within the tank, a pump, and an effluent pipe.

**Classifications:****International (IPC 8-9):** B01D29/03 B01D29/64 B01D29/68

B01D29/90 B01D35/027 B01D35/16 C02F1/00 C02F1/32

C02F103/00 E03B1/04 F17D1/00 (Advanced/Invention);

C02F103/00 (Advanced/Non-invention)

**CPC:** B01D29/035 B01D29/68 B01D29/908 C02F1/001

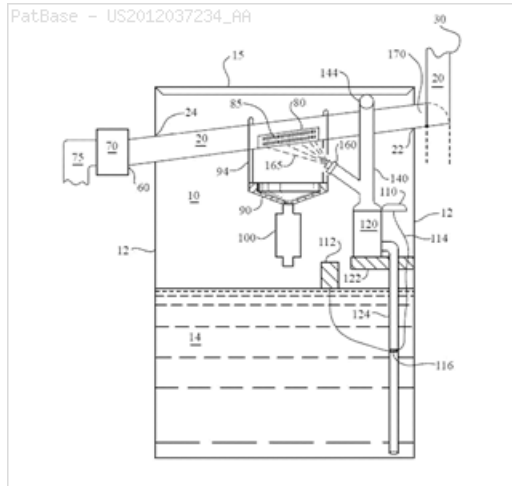
C02F2103/002 C02F2303/16 E03B1/04 E03B1/042 E03B2001/045

Y02A20/302 Y02A20/304 Y10T137/0318 B01D29/6438

**European:** B01D29/03D E03B1/04 E03B1/04B2 P03B1/04B20**US:** 137/1 137/1P 210/105 210/108 210/121 210/123 210/127

210/136 210/170.08 210/172.1 210/192 210/391 210/391S 210/409

210/411 210/413 210/416.1 210/420 210/748.1 210/791 210/86

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2010239235 AA    | 20101028         | AU20100239235      | 20100421         |
| AU2010239235 AA    | 20111208         | AU20100239235      | 20100421         |
| US2012037234 AA    | 20120216         | US20110277215      | 20111020         |
| US2013118999 AA    | 20130516         | US20130738870      | 20130110         |
| US2015151223 AA    | 20150604         | US20150616732      | 20150208         |
| US8377291 BB       | 20130219         | US20110277215      | 20111020         |
| US10315136 BB      | 20190611         | US20150616732      | 20150208         |
| WO10124037 A1      | 20101028         | WO2010US31964      | 20100421         |

**Priority:**

US20090171977P 20090423 US20100321839P 20100407 US20100323840P 20100413  
 WO2010US31964 20100421 US20110277215 20111020 US20130738870 20130110  
 US20150616732 20150208

**Probable Assignee:** ECKMAN NOADIAH S**Assignee(s):** (std): ECKMAN ENV CORP ; ECKMAN ENVIRONMENTAL CORP ; ECKMAN NOADIAH S**Inventor(s):** (std): ECKMAN NOADIAH S**Agent(s):** FB RICE; FB RICE PTY LTD; ECKMAN BASU LLP; ECKMAN LAW GROUP; ECKMAN RICHARD R ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU  
 CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL  
 IN IS IT JP KE KG KM KN KP KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW  
 MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV  
 SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**35) Family number: 14612502** (GB2365912A)

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**Title:** STORAGE TANK AND FILTRATION UNIT FOR A GREY WATER PROCESSING SYSTEM

**Abstract:** A storage tank (fig 3) for a grey water processing system wherein the storage tank has an inflow (17) for water from the mains water system, the inflow being regulated by a regulating valve with associated water level dependent switching means, the inflow opening into a tube (18) that encompasses the inflow and valve (21) and directs the mains water therefrom downwardly through the tube, the tube opening into the tank toward the bottom of the tank and being provided with an air vent (27) to prevent siphoning back up the tube. A filtration unit (fig 2) for a grey water processing system wherein the filtration unit comprises a tank with a grey water inflow at the bottom of the tank, a filter (5) positioned thereabove with a pumping means (6) to pump it toward a separate storage tank whereby particulate matter filtered from the grey water by the filter is partitioned into the lower part of the filtration unit tank to gravitate to the floor of the tank away from the filter and pump.

**Classifications:****International (IPC 8-9):** B01D35/027 C02F1/00

E03B1/04 (Advanced/Invention);

C02F1/68 (Advanced/Non-invention);

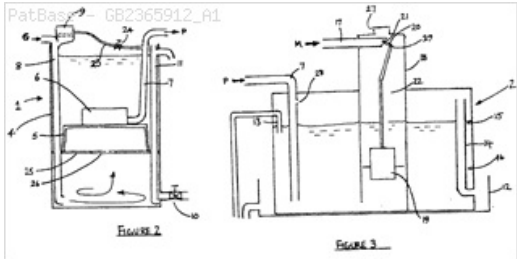
B01D35/00 C02F1/00 E03B1/00 (Core/Invention);

C02F1/68 (Core/Non-invention)

**International (IPC 1-7):** E03B11/02**CPC:** Y02A20/148 Y02A20/302 B01D35/027 C02F1/008 C02F1/685

C02F2103/002 E03B1/04 E03B2001/045

**European:** B01D35/027 C02F1/00T E03B1/04 M02F1/68P



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| GB200018288 A0     | 20000913         | GB20000018288      | 20000726         |
| GB2365912 A1       | 20020227         | GB20000018288      | 20000726         |
| GB2365912 B2       | 20020904         | GB20000018288      | 20000726         |

Priority:

GB20000018288 20000726

|                     |                                    |
|---------------------|------------------------------------|
| Probable Assignee:  | HART BRIAN GEORGE                  |
| Assignee(s): (std): | HART BRIAN GEORGE ; ROBERTS TREVOR |
| Assignee(s):        | TREVOR ROBERTS ; BRIAN GEORGE HART |
| Inventor(s): (std): | HART BRIAN GEORGE ; ROBERTS TREVOR |
| Inventor(s):        | TREVOR ROBERTS ; BRIAN GEORGE HART |

36) Family number: 66513503 (KR101764563B)

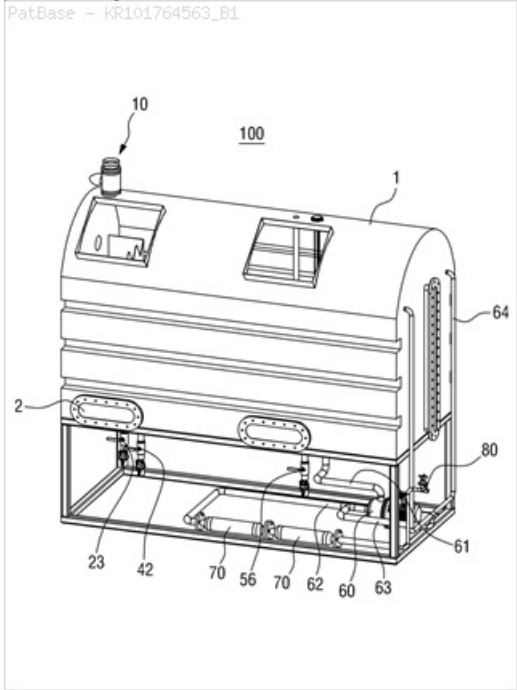
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Title: INTEGRATED TYPE RAINWATER TREATMENT SYSTEM USING SCREW FILTER AND METHOD OF OPERATION THEREOF

**Abstract:** The present invention relates to an integrated rainwater treatment system for collecting, storing, and filtering rainwater using a screw filter and an operating method thereof. More specifically, the integrated rainwater treatment system for collecting, storing, and filtering rainwater using a screw filter comprises: a main body; a collection treatment device disposed on one side of the main body to collect entering rainwater; an initial rainwater exclusion unit disposed in the main body to allow rainwater collected by the collection treatment device to enter and exclude initial rainwater of the entering rainwater; a first settling tank disposed in the main body, into which rainwater from which the initial rainwater is excluded by the initial rainwater exclusion unit flows; a first partition wall dividing the initial rainwater exclusion unit and the first settling tank; a second settling tank disposed in the main body to allow the rainwater of the first settling tank to enter; a second partition wall to divide the first and the second settling tank; a water outlet line disposed on one side of a lower end of the second settling tank to discharge rainwater; a pump disposed on one side of the water outlet line; a water discharge line to discharge water by drive of the pump; at least one filtering device disposed on the water discharge line, to which a screw filter is applied; and a final water outlet line to discharge final water by the filtering device.

Classifications:

**International (IPC 8-9):** C02F1/40 C02F1/52 E03B1/04 E03B3/02 E03F5/10 E03F5/14 (Advanced/Invention)  
**CPC:** Y02A20/108 B01D2221/12 C02F1/40 C02F1/52 E03B3/02 E03B2001/047 E03F5/101 E03F5/105 E03F5/14 E03F2201/10



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| KR101764563 B1     | 20170802         | KR20170015495      | 20170203         |

Priority:

KR20170015495 20170203

|                     |                                                                                                    |
|---------------------|----------------------------------------------------------------------------------------------------|
| Probable Assignee:  | HANBAT NAT UNIV IND ACADEMIC COOP FOUND                                                            |
| Assignee(s): (std): | HANBAT NAT UNIV IND ACADEMIC COOP FOUND ; HANBAT NATIONAL UNIV IND ACADEMIC COOPERATION FOUNDATION |
| Assignee(s):        | HANBAT NATIONAL UNIVERSITY INDUSTRY ACADEMIC COOPERATION FOUNDATION                                |

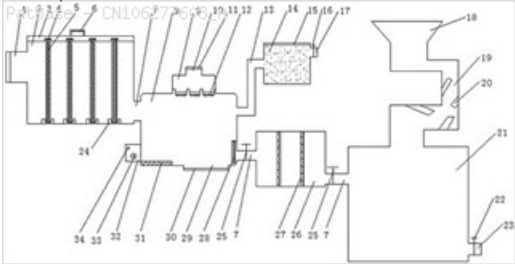
37) Family number: 64589508 (CN106277608A) © PatBase

Title: SEWAGE TREATMENT DEVICE WITH RAINWATER COLLECTION FUNCTION

**Abstract:** The invention discloses a sewage treatment device with a rainwater collection function. The sewage treatment device comprises a filter chamber, a chemical settlement tank, an activated carbon chamber, a biofilter tank and a water storage tank, wherein a water inlet is formed in one side of the filter chamber, a turning cover is arranged at the top of the filter chamber, a plurality of clamping grooves are formed in the inner side of the turning cover, a plurality of clamping plates are arranged at the bottom of the filter chamber, a filter plate is arranged between each clamping plate and the corresponding clamping groove, the chemical settlement tank is arranged on one side of the filter chamber, the activated carbon chamber is formed in one side of the top of the chemical settlement tank, the biofilter tank is arranged on one side of the bottom of the chemical settlement tank and connected with the chemical settlement tank through a water guide pipe, the water storage tank is arranged on one side of the biofilter tank, and a C-shaped pipe and a rainwater collection port formed in an end part of the C-shaped pipe are arranged at the top of the water storage tank. The sewage treatment device can perform multi-stage sewage treatment better, collection and utilization of treated sewage are facilitated, collection and utilization of rainwater are facilitated, and the ecological and environmental protection effects are better.

**Classifications:**

**International (IPC 8-9):** C02F1/00 C02F1/28 C02F1/52 C02F3/00 C02F9/14 E03B3/02 (Advanced/Invention)  
**CPC:** Y02A20/108 C02F9/00 C02F1/001 C02F1/283 C02F1/52 C02F3/00 C02F2103/001 C02F2301/08 E03B3/02



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ■ CN106277608 A    | 20170104         | CN201610762012     | 20160831         |
| ■ CN106277608 B    | 20190611         | CN201610762012     | 20160831         |

**Priority:**

CN201610762012 20160831

**Probable Assignee:** NANNING FENGYOU AGRICULTURAL TECH CO LTD

**Assignee(s):** (std): GUANGXI DOCTOR HAIYI INFORMATION TECHNOLOGY CO LTD ; NANNING FENGYOU AGRICULTURAL TECH CO LTD

**Assignee(s):** NANNING FENGYOU AGRICULTURAL TECHNOLOGY CO ; NANNING AGRICULTURE SCIENCE AND TECHNOLOGY CO LTD

**Inventor(s):** (std): LUO RONGJUAN

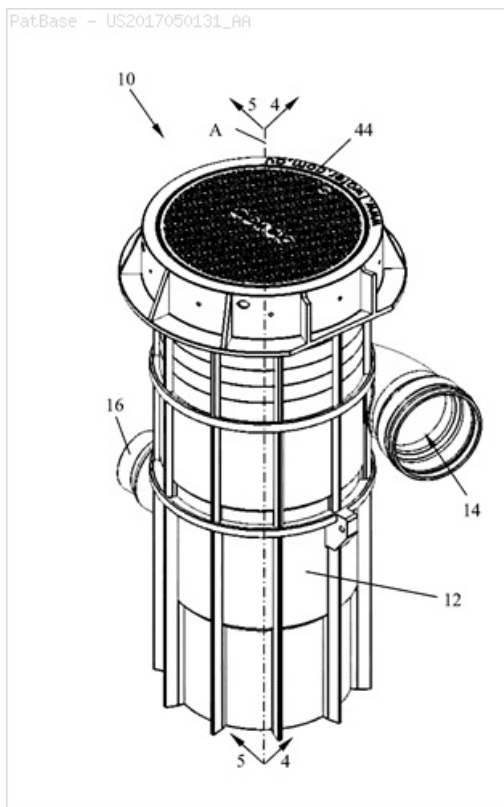
38) Family number: 64975519 (US2017050131A) © PatBase

Title: DEVICE FOR IMPROVING WATER QUALITY

**Abstract:** Disclosed herein is a device for improving the quality of rainwater/stormwater by removing pollutants therefrom. The device comprises a substantially cylindrical tank having an inlet for entry of liquid and an outlet for discharge of liquid. A coarse filter is provided in the tank for filtering gross pollutants from inflowing liquid, the coarse filter dividing the tank into an upstream first region/chamber and a downstream second region/chamber. A fine pollutant discharge opening is located between the coarse filter and the outlet. A valve comprising a valve member for opening and closing the fine pollutant discharge opening is configured to automatically open the fine pollutant discharge opening to discharge an initial volume of the liquid passing the coarse filter, the valve member being biased toward a configuration for closure of the opening during an inflow event. The liquid passing through opening bypasses the outlet.

**Classifications:**

**International (IPC 8-9):** B01D21/00 B01D21/24 B01D29/56 B01D35/00 B01D35/02 B01D35/147 B01D35/28 C02F1/00 E03B3/02 E03F1/00 E03F5/04 (Advanced/Invention); C02F103/00 (Advanced/Non-invention)  
**CPC:** C02F2103/001 C02F2209/40 C02F2209/42 B01D29/56 B01D35/147 C02F1/001 C02F1/004 C02F2103/002 C02F2301/043 E03B3/02 E03F1/00 E03F5/0404 Y02A20/108 Y02A20/156  
**US:** 1/1 210/121

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2016216678 AA    | 20170309         | AU20160216678      | 20160818         |
| CN206587479 U      | 20171027         | CN201620902837U    | 20160818         |
| US2017050131 AA    | 20170223         | US20160240758      | 20160818         |
| US2019233303 AA    | 20190801         | US20190383600      | 20190413         |
| US10301188 BB      | 20190528         | US20160240758      | 20160818         |

**Priority:**

AU20150903331 20150818      US20160240758 20160818      US20190383600 20190413

**Probable Assignee:** ONE WATER NATURALLY PTY LTD

**Assignee(s):** (std): ONE WATER NATURALLY PTY LTD

**Inventor(s):** (std): SPARKE DAVID ; DAVID SPARKE

**Agent(s):** FB RICE; FB RICE PTY LTD; MASCHOFF BRENNAN

**39) Family number: 40814542 (EP1857600B1)**

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**Title:** DEVICE FOR STORING AND TREATING RAINWATER

**Abstract:** The device for collecting, filtering and treating rain water from roof for sanitary installation such as toilet, washing machine/for watering of garden, comprises a supply network for draining water from gutters and supplying to the device, a filter for removing coarse impurities such as leaves, twigs or other organic matters or solids, a storage tank (4) connected to the filter by a connecting system, a floating safety valve triggering an alarm while a level of the storage tank is too low, and an overflow siphon. The device for collecting, filtering and treating rain water from roof for sanitary installation such as toilet, washing machine/for watering of garden, comprises a supply network for draining water from gutters and supplying to the device, a filter for removing coarse impurities such as leaves, twigs or other organic matters or solids, a storage tank (4) connected to the filter by a connecting system, a floating safety valve triggering an alarm while a level of the storage tank is too low, an overflow siphon, and a permutation unit to modify the water flow in the sanitary installations. The storage tank is equipped with a column (4b) in which a rain water purification module is disposed, and is comprised with an opening equipped with the siphon, a grid (4d) and a valve to block an access of water towards the storage tank. The purification module and the column consists of overlaying trays containing filtering media, which is arranged in a cascade. The filter contains two grids between which the filtering media or a geotextile material is laid out. The first grid has mesh with gaps more than the second grid. The storage tank contains the column surmounted by a plug, a grid laid out at the rain water inflow and intended for the diffusion and oxygenation of the water, and a collector and a conduit laid out in the grid. The filtering media is composed of elements to neutralize rainwater, and/or comprises a bactericidal activity. A lower part of the column contains a mineralite based coating media, and has bends to allow the release of rainwater towards the storage tank. The column contains an air pump laid out on the plug. The storage tank is made up of concrete, plastic or composite. A permutation table is fitted with a valve to reverse a position of a sleeve, and is equipped with a filtration module to eliminate the metals and pesticides.

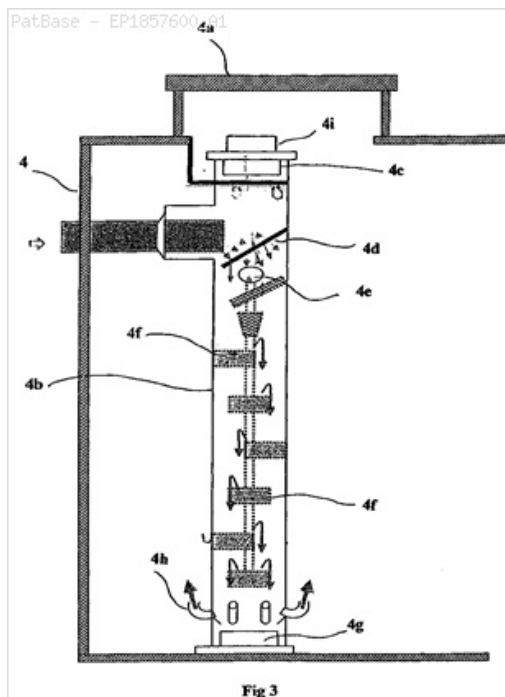
**Classifications:**

**International (IPC 8-9):** C02F1/00 E03B1/04 E03B3/02 E03B3/03 (Advanced/Invention);

C02F1/00 E03B1/00 E03B3/00 (Core/Invention)

**CPC:** Y02A20/106 Y02A20/108 E03B3/03 C02F1/006 C02F2101/20 C02F2101/306 C02F2103/001 C02F2103/02 C02F2301/08 C02F2303/24 E03B3/02 E03B2001/047

**European:** E03B3/02 E03B3/03 M02F1/00R M02F101/20 M02F101/30P M02F103/00B M02F103/02 M02F301/08 M02F303/24 P03B1/04B22



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AT433015 E         | 20090615         | AT20070290499T     | 20070423         |
| DE602007001212 D1  | 20090716         | DE200760001212T    | 20070423         |
| EP1857600 A1       | 20071121         | EP20070290499      | 20070423         |
| EP1857600 B1       | 20090603         | EP20070290499      | 20070423         |
| ES2328292 T3       | 20091111         | ES20070290499T     | 20070423         |
| FR2900424 A1       | 20071102         | FR20060003831      | 20060428         |
| FR2900424 B1       | 20100813         | FR20060003831      | 20060428         |
| PT1857600 T        | 20090825         | PT20070290499T     | 20070423         |

#### Priority:

FR20060003831 20060428

**Probable Assignee:** GERARD LE DUFF

**Assignee(s):** (std): DUFF GERARD LE ; DUFF JESTIN ODILE LE ; JESTIN ODILE EP LE DUFF ; LE DUFF GERARD ; LE DUFF JESTIN ODILE

**Assignee(s):** ODILE LE DUFF JESTIN ; JESTIN ODILE LE DUFF ; GERARD LE DUFF

**Inventor(s):** (std): JESTIN ODILE EP LE DUFF ; LE DUFF GERARD ; LE DUFF JESTIN ODILE ; DUFF JESTIN ODILE LE ; DUFF GERARD LE

**Inventor(s):** ODILE LE DUFF JESTIN ; GERARD LE DUFF ; JESTIN ODILE LE DUFF

**Agent(s):** POUPON MICHEL; CABINET MICHEL POUPON; SCHMIT CHRETIEN

**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL PL PT RO SE SI SK TR YU

#### 40) Family number: 16921545 (EP0819457A1)

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**Title:** PROCESS AND APPARATUS FOR THE FILTRATION OF SEWAGE

**Abstract:** Unit for mechanical- and adsorptive cleaning of waste water and/or for recovery of waste water (esp. suitable for roof-, surface- or rain water) comprises a stage for sepg. solids, e.g. a settlement tank, followed by a lower filtration- and/or cleaning stage. A percolation shaft (9) or similar filtration and/or cleaning stage is formed by a vertical purification vessel (12, 13). The waste water is supplied to a basal inlet, cleaned water being extracted near the top. There are greater than or equal to 2 separate cleaning- and/or filtration devices in the unit.

#### Classifications:

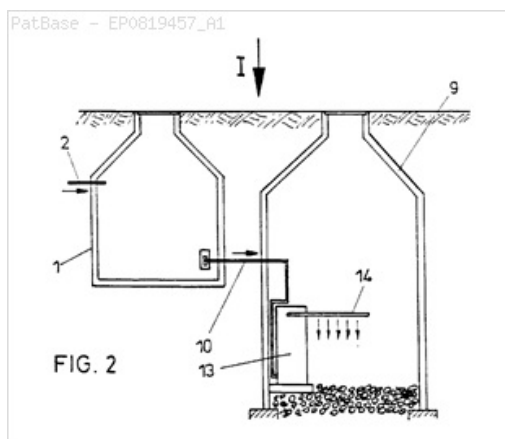
**International (ipc 8-9):** B01D21/00 C02F1/28 C02F9/00 E03B3/02 E03F5/14 (Advanced/Invention);

B01D21/00 C02F1/28 C02F9/00 E03B3/00 E03F5/14 (Core/Invention)

**International (ipc 1-7):** B01D21/00 B01D24/26 C02F1/28 C02F1/52 C02F9/00 E03B3/02

**CPC:** Y02A20/108 C02F9/005 B01D21/0012 C02F1/281 E03B3/02 E03F5/14

**European:** B01D21/00F C02F1/28B C02F9/00B C02F9/00H4 E03B3/02 E03F5/14



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AT121196 A         | 19971115         | AT19960001211      | 19960709         |
| AT403907 B         | 19980625         | AT19960001211      | 19960709         |
| DE29613280 U1      | 19961107         | DE19962013280U     | 19960731         |
| EP0819457 A1       | 19980121         | EP19970890126      | 19970708         |

**Priority:**

AT19960001211 19960709

**Probable Assignee:** KOSATKO NORBERT ING WIEN AT  
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**Assignee(s):** KOSATKO NORBERT ING WIEN AT  
**Inventor(s):** (std): KOSATKO NORBERT ; KOSATKO NORBERT ING  
**Designated states:** AT CH DE LI LU

**41) Family number: 62923556 (ZA201705335A)**

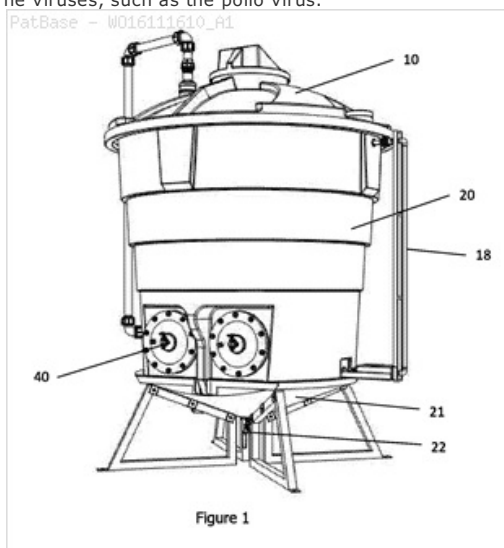
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**Title:** DRINKING WATER SUPPLY SYSTEM

**Abstract:** A drinking water supply system comprising a receiver module (10) for receiving raw water and a filter module (20) having filter cassettes (30) capable of storing water. The filter module has a filter cassette containing filter membranes of a minimum pore size of 15nm. The filter cassette is disposed horizontally within the filter module and there is an outlet for expression of filtered drinking water. The filter module is disposed below the receiver module. The position of the filter module relative to the receiver module and the weight of stored water within the filter module enables filtering of water through the filter cassette solely by action of gravity to produce drinking water. The present system is designed to maximize and utilise the force of gravity which generates a natural pressure to force water through the filter without a pump. The pores of the filters are so small that it filters out even the smallest waterborne viruses, such as the polio virus.

**Classifications:**

**International (IPC 8-9):** B01D27/00 B01D35/22 B01D35/30  
C01F1/00 E03B3/00 (Advanced/Invention)  
**CPC:** E03B3/00 C02F1/444 B01D61/18 B01D2313/18 B01D2313/44  
B01D2313/50 E03B3/02 Y02A20/108 Y02A20/154

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| BR112017014691 A2  | 20180619         | BR20171114691      | 20151228         |
| IN201747027760 A   | 20170811         | IN201747027760     | 20170804         |
| PH2017501249 A     | 20171030         | PH20170501249      | 20170706         |
| WO16111610 A1      | 20160714         | WO2015MY50157      | 20151228         |
| ZA201705335 A      | 20181128         | ZA20170005335      | 20170807         |

**Priority:**

MY20150700069 20150109 WO2015MY50157 20151228

**Probable Assignee:** H2O SAVER ASIA SDN BHD  
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**Inventor(s):** OCONNOR MICHAEL ANDREW  
**Agent(s):** HO SHIELA SHUK KYUN  
**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**42) Family number: 17694568 (EP0565921A2)**

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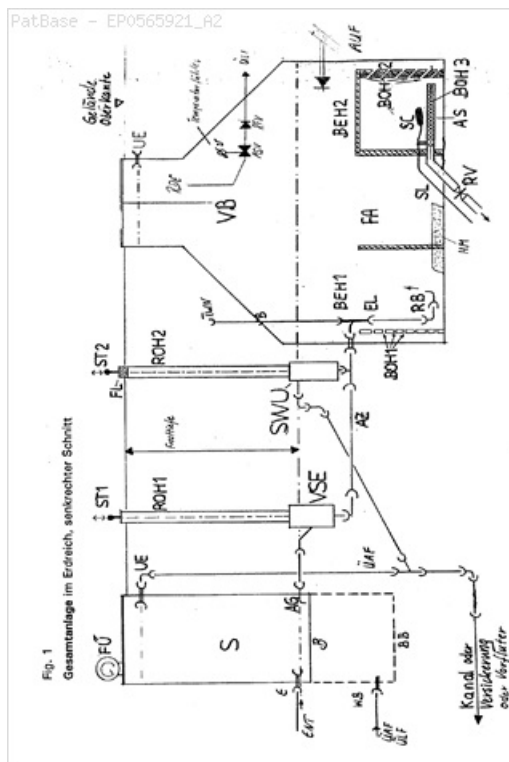
**Title:** RAIN WATER TREATING AND CONVEYING INSTALLATION FOR USE AS INDUSTRIAL WATER OR FOR TREATMENT FOR THE PURPOSE OF INFILTRATION OR INFLOW IN RECEIVING WATER.

**Abstract:** 1. Designation Installation for treating, storing and conveying rainwater for use as utility water or for treatment for

percolation or passing into an outfall. 2. Summary 2.1 Objective The aim of the invention is low-maintenance and inexpensive treatment, purification and storage of rainwater for use as utility water in homes, industry, commerce and public buildings or for the purpose of percolation or passing into an outfall, taking into account frost-proofing, with low expenditure on maintenance, without parts which wear, with a regenerable filter, with a frost-dependent filling level, with a damming-secured overflow and compact construction. 2.2 Solution of the technical object The rainwater is purified by rapid sedimentation, filtration through a depth filter and subsequent slow sedimentation. The filter is furnished with a washable, removable filter packing and, by the special construction form, makes possible high filter cross-sectional areas with low structural volume. Variable overdamming makes possible frost-proof laying of the drains in accordance with standards, without loss of filling level in the storage. Devices for forming layers and flow guidance in the storage free the water from suspended matter before withdrawal by slow sedimentation. Variable maximum water level, depending on the external temperature, make the use of an enlarged storage volume possible in frost-free seasons. 2.3 Area of application The main use of the described installation is the treatment of roof run-off water for utility water purposes. The treatment of surface run-off water from sealed surfaces is equally possible. In addition, the rain run-off from sealed surfaces can be purified by this system prior to percolation or passing into an outfall.

#### Classifications:

**International (IPC 8-9):** C02F1/00 E03B11/00 E03B3/03 E03F5/10 E03F5/14 (Advanced/Invention); C02F1/28 C02F1/32 C02F1/78 (Advanced/Non-invention); C02F1/00 E03B11/00 E03B3/00 E03F5/10 E03F5/14 (Core/Invention); C02F1/28 C02F1/32 C02F1/78 (Core/Non-invention)  
**International (IPC 1-7):** E03B1/04 E03B3/03 E04D13/04  
**CPC:** Y02W10/37 E03F5/105 C02F1/004 C02F1/281 C02F1/283 C02F1/32 C02F1/78 C02F2103/001 C02F2201/003 E03F5/14 Y02A20/108 E03B11/00 E03B3/03  
**European:** C02F1/00D6 E03B11/00 E03B3/03 E03F5/10 E03F5/10H E03F5/14 M02F1/28B M02F1/28D M02F1/32 M02F1/78 M02F103/00B M02F201/00D2



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE4209429 A1       | 19930930         | DE19924209429      | 19920324         |
| DE9218251 U1       | 19940804         | DE19920018251U     | 19920324         |
| EP0565921 A2       | 19931020         | EP19930104881      | 19930324         |
| EP0565921 A3       | 19931229         | EP19930104881      | 19930324         |

#### Priority:

DE19920018251U 19920324 DE19924209429 19920324 DE19929218251U 19920324  
DE19924209429 19920324

**Probable Assignee:** HERRMANN THILO

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**Assignee(s):** HERRMANN THILO 8580 BAYREUTH DE ; HERRMANN THILO 95445 BAYREUTH DE

**Inventor(s):** (std): HERRMANN THILO

**Inventor(s):** HERRMANN THILO 8580 BAYREUTH DE

**Designated states:** AT CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

#### 43) Family number: 48764569 (US2011091607A)

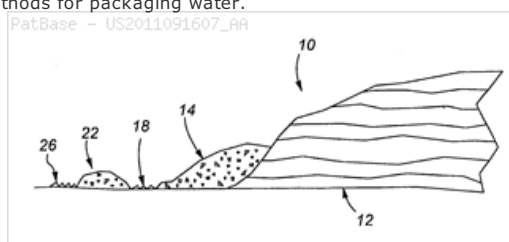
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**Title:** METHOD AND SYSTEM FOR PROCESSING GLACIAL WATER

**Abstract:** Methods and systems for recovering, and processing ice obtained from an ice source, i.e., a glacier, ice sheet, ice cap, etc., are described herein. In particular, the ice obtained from the ice source holds unique properties and is processed as a beverage for consumption having unique properties. Further, the resulting product is produced with minimal human alteration and reduced energy input as compared to conventional methods for packaging water.

#### Classifications:

**International (IPC 8-9):** A23L2/00 B01D37/00 B01D43/00 B60L8/00 B60P3/22 B63B21/00 B63B21/50 B63B21/56 B63B22/02 B63B25/08 B63B25/12 B63B27/00 B63B35/28 B63B35/58 B63B43/06 B63J3/04 B65B17/00 C02F1/00 C02F1/42 C02F1/44 C02F1/52 C02F1/66 C02F1/78 E03B1/00 E03B3/04 E03B3/30 F17D1/00 F17D1/08 G06Q30/00 G06Q90/00 G09F21/18 G09F7/00 H01L31/042 H02S10/12 (Advanced/Invention); B63B1/04 B63B21/50 B63B25/08 B63B35/00 B63B35/66 B63B43/06 B63B43/12 B63J1/00 B63J3/00 B63J3/04 B65D88/78 E02B3/28 E03B3/30 G06F17/00 G06Q10/00 G06Q90/00 H02S10/40 (Advanced/Non-invention)  
**CPC:** C02F1/006 F17D1/08 E03B1/00 B63B2035/4473 B65D88/128 B63B2203/00 C02F9/00 B63J4/002 C02F1/004 C02F1/32 C02F1/385 C02F1/441 C02F1/52 C02F1/66 C02F1/78 C02F2103/008 B65D90/00 B65D90/046 B65D2590/046 B63B43/06



E02B3/28 B65B17/00 B63B35/665 B63B2035/006 B63B2213/02 B63J1/00 B63J3/04 B63J2003/003 G09F21/18 Y02T70/70 Y02T70/36 Y10T137/0324 G06Q50/30 G06Q90/00 A23L2/72 Y02T70/90 B60L8/003 B60L2200/32 B63B25/12 B63B2025/085 H02S10/12 Y02T10/7083 B63B2213/00 H01L31/042 H02S10/40 B63B1/048 B63B21/50 B63B35/285 B63B2043/126 C02F1/001 C02F1/005 C02F2201/008 C02F2209/008 E03B3/30 Y02W10/33 Y02W10/37 Y10T137/0318 B63B25/08 B63B27/00 C02F1/00

**European:** A23L2/72 B63B25/08 B63B25/12 C02F1/00D C02F1/00M C02F9/00 E03B3/30 G09F21/18 M02F1/00D6 M02F1/00M M02F1/32 M02F1/38B M02F1/44B M02F1/52 M02F1/66 M02F1/78 M02F103/00S M02F201/00M M02F209/00T4

**US:** 1/1 114/74.00RP 114/74R 137/1 137/2 137/2P 210/652 210/652S 210/660 210/660S 210/702 210/702S 210/747 210/749 210/749S 210/760 210/760S 210/767 210/767S 210/787 210/787S 210/800 210/800S 40/584 40/584S 414/800 426/66 426/66P 441/4 53/467 705/1.1 705/330 705/332 705/500

#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2011091607 AA    | 20110421         | US20100905590      | 20101015         |
| US2011277678 AA    | 20111117         | US20110025796      | 20110211         |
| US2012216875 AA    | 20120830         | US20110222940      | 20110831         |
| US2012284210 AA    | 20121108         | US20100502188      | 20101015         |
| US2013152845 AA    | 20130620         | US20130767675      | 20130214         |
| US2014014188 AA    | 20140116         | US20130023331      | 20130910         |
| US2014033963 AA    | 20140206         | US20130049539      | 20131009         |
| US2014059979 AA    | 20140306         | US20130047663      | 20131007         |
| US2015125253 AA    | 20150507         | US20140578915      | 20141222         |
| US2015217837 AA    | 20150806         | US20150689203      | 20150417         |
| US2016304167 AA    | 20161020         | US20160187051      | 20160620         |
| US2018237110 AA    | 20180823         | US20180959438      | 20180423         |
| US2020010153 AA    | 20200109         | US20190549495      | 20190823         |
| US2020039611 AA    | 20200206         | US20190594266      | 20191007         |
| US8403718 BB       | 20130326         | US20110025796      | 20110211         |
| US8702460 BB       | 20140422         | US20130767675      | 20130214         |
| US8924311 BB       | 20141230         | US20100502188      | 20101015         |
| US9010261 BB       | 20150421         | US20130047663      | 20131007         |
| US9017123 BB       | 20150428         | US20130049539      | 20131009         |
| US9371114 BB       | 20160621         | US20150689203      | 20150417         |
| US9950773 BB       | 20180424         | US20160187051      | 20160620         |
| US10399642 BB      | 20190903         | US20140578915      | 20141222         |
| US10435118 BB      | 20191008         | US20180959438      | 20180423         |
| WO11047275 A1      | 20110421         | WO2010US52864      | 20101015         |
| WO13016417 A1      | 20130131         | WO2012US48134      | 20120725         |
| WO13016440 A1      | 20130131         | WO2012US48166      | 20120725         |

#### Priority:

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|----------------|----------|----------------|----------|----------------|----------|
| US20090251912P | 20091015 | US20100303519P | 20100211 | US20100378811P | 20100831 |
| US20100905590  | 20101015 | US20100502188  | 20101015 | WO2010US52864  | 20101015 |
| US20110025796  | 20110211 | US20110511208P | 20110725 | US20110222940  | 20110831 |
| WO2012US48166  | 20120725 | US20120502188  | 20120727 | US20130767675  | 20130214 |
| US20130023331  | 20130910 | US20130023311  | 20130910 | US20130047663  | 20131007 |
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| US20160187051  | 20160620 | US20180959438  | 20180423 | US20190549495  | 20190823 |
| US20190594266  | 20191007 |                |          |                |          |

**Probable Assignee:** WORLD S FRESH WATERS PTE LTD

**Assignee(s):** (std): FOUTS MICKEY ; SYZDLOWSKI ALLEN ; SYZDLOWSKI ALLEN ; SYZDLOWSKI IAN ; WORLD S FRESH WATERS PTE LTD ; WORLDS FRESH WATERS PTE LTD

**Assignee(s):** WORLD'S FRESH WATERS PTE LTD ; WATERS OF PATAGONIA SA

**Inventor(s):** (std): SYZDLOWSKI ALLEN ; SYZDLOWSKI ALLEN ; FOUTS MICKEY ; SYZDLOWSKI IAN

**Agent(s):** SHERIDAN ROSS P C ; SHERIDAN ROSS PC ; BURKE JAMES M ET AL ; BURKE JAMES M

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 44) Family number: 51932586 (WO12123887A1)

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**Title:** SYSTEM AND METHOD FOR RESIDENTIAL AND COMMERCIAL GREY WATER MANAGEMENT

**Abstract:** A grey water management system for a domestic residential application and also an irrigation application. The system has a modular pumping station comprising a digital controller and a water pump for pumping grey water to a plurality of consuming devices such as toilet flush water storage tanks. Grey water is collected from the drains of bathroom showers and sinks and stored in a grey water storage tank. A heat exchanger is in the grey water storage tank to transfer heat from the grey water to a hot water tank intake. The digital controller uses a control algorithm which has a learning cycle.

#### Classifications:

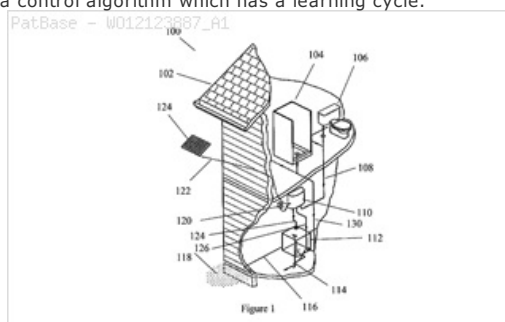
**International (IPC 8-9):** C02F1/00 E03B1/04 (Advanced/Invention)

**CPC:** E03B1/041 E03B3/02 E03B2001/045 E03B2001/047

E03C2001/005 C02F2103/002 C02F2209/005 Y02W10/37

Y02A20/108 Y02A20/148

**European:** M02F103/00C M02F209/00T



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| WO12123887 A1      | 20120920         | WO20121B51164      | 20120312         |

**Priority:**

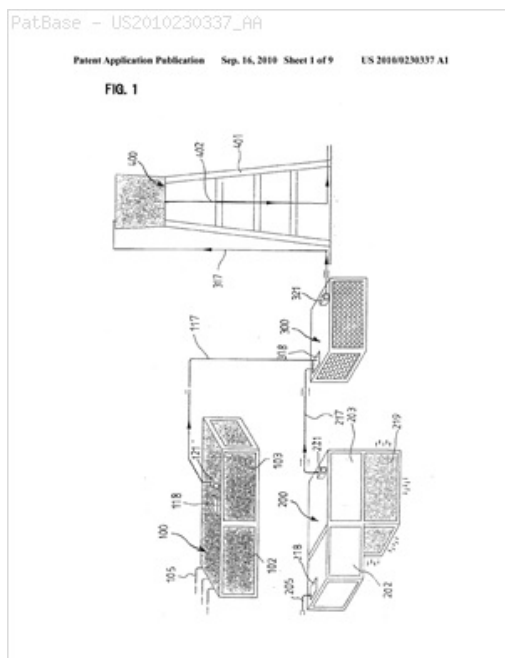
US20110452564P 20110314

**Probable Assignee:** IDUS CONTROLS LTD**Assignee(s):** (std): HARTMAN REINOUD JACOB ; IDUS CONTROLS LTD**Inventor(s):** (std): HARTMAN REINOUD JACOB**Agent(s):** THOMSON GORDON**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW**45) Family number: 43231644 (US2010230337A)**

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**Title:** WATER TANK APPARATUS

**Abstract:** A water tank apparatus comprising a first tank (100) for wastewater collection; a second tank (200) for collection of rainwater and groundwater; a third tank (300) connected on the downstream side of the first tank (100) and second tank (200); and a fourth tank (400) disposed at a high position above the ground and connected on the downstream side of the third tank (300) so as to supply any reserved water as a usable water, wherein the first tank (100) and second tank (200) are individually partitioned into first sections (102,202) and second sections (103,203), and wherein the second sections (103,203) are provided with ramps for water flow from its upstream side superior area toward inferior area, the ramps furnished with a multiplicity of projections.

**Classifications:****International (IPC 8-9):** B01D21/02 B01D21/24 C02F1/00 C02F1/28 E03B3/02 E03B3/04 E03B3/06 E03C1/01 (Advanced/Invention); B01D21/02 C02F1/00 C02F1/28 E03B3/00 E03C1/00 (Core/Invention)**CPC:** Y02A20/106 Y02A20/108 E03B3/03 B01D21/0012 B01D21/003 B01D21/0048 B01D21/0075 B01D21/02 B01D2221/12 C02F1/006 C02F1/281 C02F2001/007 C02F2103/001 C02F2103/06 E03B1/04 E03B1/042 E03B3/04 E03B3/06 B01D21/0039**European:** B01D21/00F B01D21/00M B01D21/00N B01D21/00N20 B01D21/00N20S B01D21/00N6 B01D21/02 C02F1/00R C02F1/28B E03B1/04 E03B1/04B2 E03B3/03 E03B3/04 E03B3/06 L01D221/12 M02F1/00S M02F103/00B M02F103/06**US:** 210/170.03 210/170.030P**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2007361393 AA    | 20090514         | AU20070361393      | 20071106         |
| CA2674150 AA       | 20090514         | CA20072674150      | 20071106         |
| JP2009060510 A1    | 20110317         | JP20090511282T     | 20071106         |
| JP4355773 B1       | 20091104         | JP20090511282T     | 20071106         |
| JP4355773 B2       | 20091104         | JP20090511282T     | 20071106         |
| US2010230337 AA    | 20100916         | US20070521440      | 20071106         |
| WO09060510 A1      | 20090514         | WO2007JP71548      | 20071106         |

**Priority:**

WO2007JP71548 20071106

**Probable Assignee:** METWALLY ADEL AHMMED ABO ALNAJ**Assignee(s):** (std): ADEL AHMMED ABO ALNAJAH METWALLY ; ADEL METWALLY ; METWALLY ADEL AHMMED ABO ALNAJ ; METWALLY ADEL AHMMED ABO ALNAJAH**Inventor(s):** (std): METWALLY ADEL AHMMED ABO ALNAJAH**Inventor(s):** ADEL AHMMED ABO ALNAJAH METWALLY**Agent(s):** PHILLIPS ORMONDE FITZPATRICK; TAKEMOTO SHOJI; SUGIYAMA HIDEO; YUDA KOICHI; UOZUMI TAKAHIRO; TESHIMA NAOHIKO; DRINKER BIDDLE AND REATH (DC); TAKEMOTO SHOJI ET AL**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**Title:** TREATMENT OF RAIN WATER COMPRISES COLLECTING THE RAIN WATER USING A SYSTEM, AND TREATING THE RAIN WATER BY FILTRATION, MICROFILTRATION, ULTRAVIOLET LAMP AND/OR DISINFECTION BY OZONISATION

**Abstract:** The treatment of rain water comprises collecting the rain water using a system, and treating the rain water by filtration, microfiltration, ultraviolet lamps and/or disinfection by ozonisation. Mineralization is carried out by adding calcium carbonate with the collected water at a pH of 5.8 and hardness of french degree of 0.5. The system consists of a structure supporting tarpaulin cover (3) and it is anticipated device forming gutter (4) intended to pass water that falls on the cover and sliding over to a storage basin (6). The treatment of rain water comprises collecting the rain water using a system, and treating the rain water by filtration, microfiltration, ultraviolet lamps and/or disinfection by ozonisation. Mineralization is carried out by adding calcium carbonate with the collected water at a pH of 5.8 and hardness of french degree of 0.5. The system consists of a structure supporting tarpaulin cover (3) and it is anticipated device forming gutter (4) intended to pass water that falls on the cover and sliding over to a storage basin (6). The cover has a form of a convex roof, of which the convexity is turned upwards that is the direction from which the rain falls, and the device forming gutters extend over a part of the circumference of the roof-shaped cover. The structure is composed of channels in the form of a tube, connected by arches that support the cover. The structure is a chapel or a cathedral greenhouse, preferably horticulture or gardening.

**Classifications:**

**International (ipc 8-9):** C02F9/02 C02F9/04 C02F9/12 C02F9/14 E03B3/02 (Advanced/Invention);

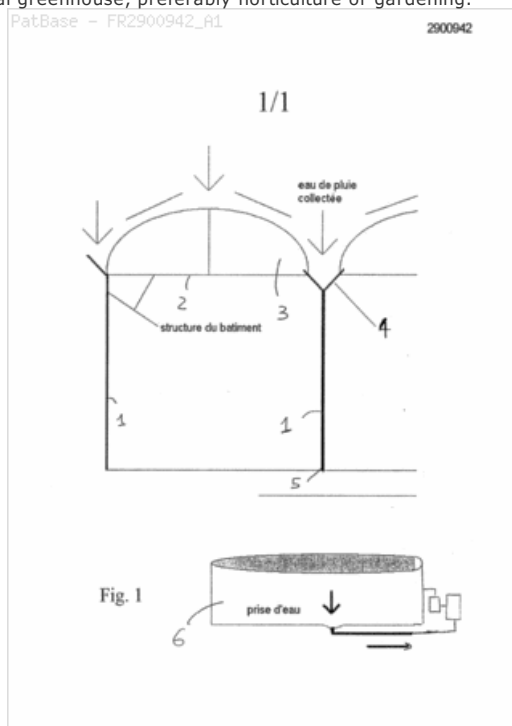
C02F9/00 C02F9/02 C02F9/08 C02F9/14 E03B3/00 (Core/Invention)

**CPC:** Y02A20/108 E03B3/02 C02F1/32 C02F1/444 C02F1/66

C02F1/78 C02F2103/001

**European:** C02F1/66 E03B3/02 M02F1/32 M02F1/44D M02F1/78

M02F103/00B



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR2900942 A1       | 20071116         | FR20060004127      | 20060510         |

**Priority:**

FR20060004127 20060510

**Probable Assignee:**

PHILIBERT DAVID

**Assignee(s):** (std):

PHILIBERT DAVID

**Assignee(s):**

DAVID PHILIBERT

**Inventor(s):** (std):

PHILIBERT DAVID

**Inventor(s):**

DAVID PHILIBERT

**Agent(s):**

CABINET FABER

**Title:** CIRCULATING WATER UTILIZATION SYSTEM

**Abstract:** A circulating-water utilization system (1) to be constructed in a specific area includes; a circulation channel (2) having a closed loop shape through which circulating water flow's; a discharge channel (4) through which wastewater discharged from a water consumer (3) is discharged to the circulation channel (2), the water consumer (3) being composed of water consuming members; a purifying unit (8) configured to purify the circulating water containing the wastewater flowing through the circulation channel (2); a supply channel (6) configured to supply the circulating water purified by the purifying unit (8) to the water consumer (3); water intake parts (10) for intake of the circulating water from the supply channel (6), disposed on the respective water consuming members; and sterilizing units (11) disposed on the respective water intake parts (10), and configured to individually sterilize the circulating water to be supplied to the respective water consuming members.

**Classifications:**

**International (ipc 8-9):** C02F1/00 C02F1/02 C02F1/32 C02F1/42 C02F1/44 C02F1/78 C02F3/30 C02F9/00 E03B1/00 E03B1/04

E03C 1/00 (Advanced/Invention);

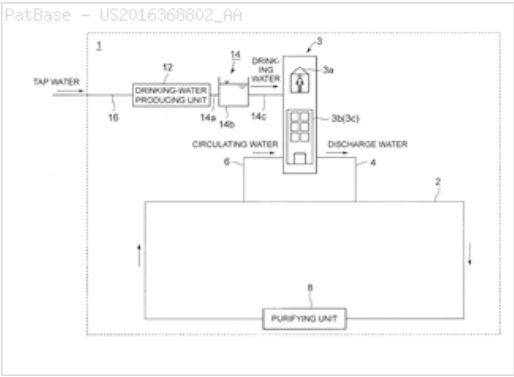
C02F103/00 (Advanced/Non-invention)

**CPC:** C02F1/02 C02F1/325 C02F2201/326 C02F2209/005

C02F2209/44 C02F2301/046 C02F2303/04 C02F2307/10

C02F2307/14 E03B1/042 E03B2001/045 C02F1/008 C02F1/42

C02F1/44 C02F1/78 C02F3/30 C02F9/00 C02F2103/002



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ID201706777 A      | 20170622         | ID2016P0003705     | 20141204         |
| JP2015108254 A2    | 20150611         | JP20130251621      | 20131205         |
| JP5567199 B1       | 20140806         | JP20130251621      | 20131205         |
| MX2016006862 A1    | 20160819         | MX20160006862      | 20141204         |
| MX367968 B         | 20190911         | MX20160006862      | 20141204         |
| US2016368802 AA    | 20161222         | US20140100849      | 20141204         |
| US9611161 BB       | 20170404         | US20140100849      | 20141204         |
| WO15083784 A1      | 20150611         | WO2014JP82096      | 20141204         |

Priority:

JP20130251621 20131205 WO2014JP82096 20141204

Probable Assignee: MITSUBISHI HITACHI POWER SYSTEMS LTD

Assignee(s): (std): MITSUBISHI HEAVY IND LTD ; MITSUBISHI HITACHI POWER SYS

Assignee(s): MITSUBISHI HITACHI POWER SYSTEMS LTD

Inventor(s): (std): KITAGAWA TSUTOMU ; JUN HYODO ; HIROYUKI YAGITA ; RIKI KITAGAWA ; HAYATO SHIN ; JUNICHI MINAMIURA ; YUKINOBU YOKOTA ; SHIN HAYATO ; HYODO JUN ; KITAGAWA RIKI ; YOKOTA YUKINOBU ; YAGITA HIROYUKI ; MINAMIURA JUNICHI

Agent(s): NABILA AM BADAR SH LLM; SEISHIN IP PATENT FIRM PC; WESTERMAN HATTORI DANIELS AND ADRIAN LLP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

48) Family number: 65901712 (CN106759827A)

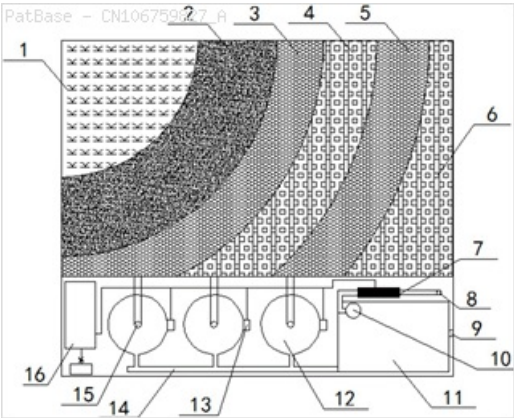
PatBase

Title: RENEWABLE ENERGY SOURCE UTILIZED RECYCLING SYSTEM AND METHOD FOR WATER IN PLANTING ROOF

Abstract: The invention discloses a renewable energy source utilized recycling system and method for water in a planting roof. The system comprises a rainwater collecting and filtering unit and a rainwater treatment unit which are arranged on the roof and connected; the rainwater collecting and filtering unit is of a multilayer structure, and comprises planted turf, planting soil, a filtering cloth layer and a glass fiber reinforced plastic grid plate layer which are sequentially arranged from top to bottom; the rainwater treatment unit is arranged at the position lower than the rainwater collecting and filtering unit and comprises a water tank, treatment devices, induction adjusters and filter water inlet pipes. The treatment devices are connected with the bottoms of the rainwater collecting and filtering unit through the filter water inlet pipes, multiple stages of treatment device are arranged, and the treatment devices are used for treating chemical impurities and biological impurities in rainwater; the induction adjusters are arranged on the treatment devices, and used for adjusting the power of the treatment devices according to the amount of rainfall; the rainwater treated through the treatment devices is output to the water tank. Water resources can be effectively saved, the rainwater can be filtered, sterilized and disinfected, and the water quality of used water is guaranteed.

Classifications:

International (IPC 8-9): C02F9/14 E03B1/04 E03F5/10 E03F5/14 E03F5/22 E04D11/00 (Advanced/Invention)  
CPC: E03F5/10 C02F1/001 C02F1/76 C02F3/32 C02F9/00 C02F2103/001 E03B1/041 E03B2001/047 E03F5/105 E03F5/14 E03F5/22 E04D11/002 Y02B80/32 Y02W10/33 Y02W10/37 Y02A20/304 Y02A30/254



Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN106759827 A      | 20170531         | CN201611244313     | 20161229         |
| CN106759827 B      | 20190625         | CN201611244313     | 20161229         |

Priority:

**Probable Assignee:** CHINA FIRST METALLURGICAL GROUP CO LTD**Assignee(s):** (std): CHINA FIRST METALLURGICAL GROUP CO LTD ; CHINA FIRST METALLURGICAL GROUP CO LTD**Assignee(s):** CHINA FIRST METALLURGICAL GROUP CO**Inventor(s):** (std): LIANG QIJIA ; XU PAN ; YANG DUOJIAO ; XU LAN ; YIN DIAN**49) Family number: 58337727** (US2015021247A)

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**Title:** METHOD AND SYSTEM FOR WATER RECLAMATION, PURIFICATION, AND REUSE FOR RESIDENTIAL, COMMERCIAL, AND AGRICULTURAL APPLICATIONS

**Abstract:** A water reclamation system includes a drainage lane overlaying a downward graded area of land and configured to receive water run-off from the land. At least one collection ditch coupled to the at least one drainage lane is configured to receive water from the drainage lane. At least one collection pipe housed is within and extends outwardly from the at least one collection ditch. A first container is coupled to the at least one collection pipe and configured to receive water from the at least one collection pipe. Housed within the first container is at least one water purifying filter and a pump configured to evacuate at least a portion of water within the container to a destination. A second container is in communication with the first container and is configured to: subject water received from the first container to a purification process; and store the purified water.

**Classifications:****International (IPC 8-9):** C02F1/00 C02F1/28 C02F1/32 C02F1/50 C02F1/78 E03B1/04 E03B11/02 E03B3/03 E03B7/07 E03B7/08

E03F5/10 (Advanced/Invention);

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C02F103/00 (Advanced/Non-invention)

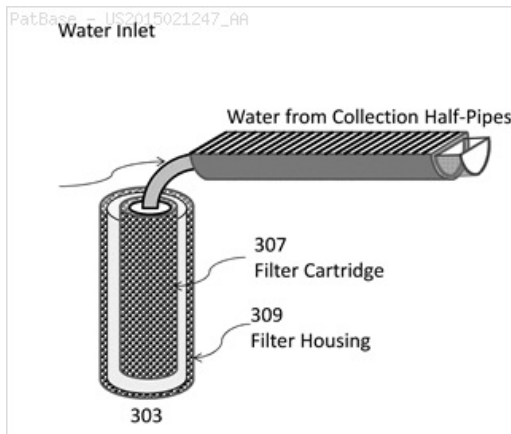
**CPC:** C02F2103/001 C02F2103/002 C02F1/004 C02F1/008

C02F1/441 C02F1/442 C02F1/66 C02F1/76 C02F2303/04

C02F2303/16 C02F2303/24 E03B1/041 E03B2001/045 E03B2001/047

Y02W10/37 C02F1/50 E03B3/03 C02F2307/14 E03B1/042 C02F1/00

C02F1/283 C02F1/32 C02F1/78 Y02A20/108

**US:** 1/1 210/143 210/170.01 210/170.03**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2015021247 AA    | 20150122         | US20140214654      | 20140314         |
| US2017107701 AA    | 20170420         | US20160349257      | 20161111         |
| US9517946 BB       | 20161213         | US20140214654      | 20140314         |

**Priority:**

US20130782659P 20130314

US20140214654 20140314

US20160349257 20161111

**Probable Assignee:** LIN HENDEL CATHERINE G**Assignee(s):** (std): LIN HENDEL CATHERINE G**Inventor(s):** (std): LIN HENDEL CATHERINE G**Agent(s):** BARNES AND THORNBURG LLP; THOMAS J**50) Family number: 28343733** (WO04065701A1)

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**Title:** RAINWATER FILTRATION AND COLLECTION SYSTEM

**Abstract:** The filter-separator device (1) is connected into a rainwater disposal pipe of a building to divert rainwater for collection. A horizontal barrier (7) is placed in the pipe with an outlet (9) above and adjacent to the barrier (7). A perforated funnel (4) extends through the barrier (7). The upper periphery of the funnel (4) extends towards the walls of the pipe above the outlet to define a separation gap (10) of width no more than two millimetres to allow flow of relatively clear water, while further clear water may flow through the perforations of the funnel (4).

**Classifications:****International (IPC 8-9):** B01D29/01 C02F9/00 E03B3/02

E04D13/08 (Advanced/Invention);

C02F1/32 (Advanced/Non-invention);

B01D29/01 C02F9/00 E03B3/00 E04D13/04 (Core/Invention);

C02F1/32 (Core/Non-invention)

**International (IPC 1-7):** B01D35/02 E03B3/02 E04D13/08**CPC:** Y02A20/108 Y02A20/212 E03B7/074 B01D29/018 B01D2201/48

C02F1/001 C02F1/32 C02F9/005 C02F2103/001 C02F2201/009

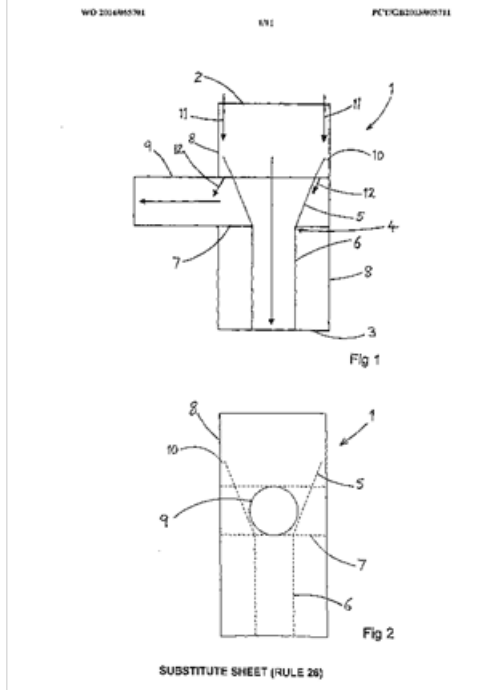
E03B3/02 E04D13/08 E04D2013/082 B01D29/115 B01D29/58

B01D29/902

**European:** B01D29/01R C02F9/00B E03B3/02 E03B7/07D

E04D13/08 L01D201/48 M02F1/00D M02F1/32 M02F103/00B

M02F201/001 M02F201/00P P04D13/08C

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2003295174 AA    | 20040813         | AU20030295174      | 20031231         |
| GB200301541 A0     | 20030226         | GB20030001541      | 20030123         |
| GB200319619 A0     | 20030924         | GB20030019619      | 20030821         |
| GB200330205 A0     | 20040204         | GB20030030205      | 20031231         |
| GB2397537 A1       | 20040728         | GB20030030205      | 20031231         |
| WO04065701 A1      | 20040805         | WO2003GB05711      | 20031231         |

**Priority:**

GB20030001541 20030123 GB20030019619 20030821 WO2003GB05711 20031231

**Probable Assignee:** TRINCAS NICHOLAS J

**Assignee(s):** (std): TRINCAS NICHOLAS J ; TRINCAS NICHOLAS JOHN

**Assignee(s):** NICHOLAS JOHN TRINCAS

**Inventor(s):** (std): TRINCAS NICHOLAS JOHN

**Inventor(s):** NICHOLAS JOHN TRINCAS

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**51) Family number:** 65329758 (KR101720788B)

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**Title:** RAIN WATER REUSE PROCESSING DEVICE

**Abstract:** According to the present invention, a treatment apparatus for recycling initial rainwater comprises: a main body container (10) having a hollow space (11), wherein a first center line (C1) is perpendicularly installed on the ground or a structure; an initial rainwater inlet pipe (20), wherein a second center line (C2) is formed on an upper portion of the main body container (10) in a direction perpendicular to the first center line (C1) of the main body container (10), and the second center line (C2) and the first center line (C1) cross each other without intersecting with each other; a filter unit (30) positioned in the hollow space (11) of the main body container (10) and provided with a side wall-type filtering net (31) having a permeable hole and forming a circular side wall, wherein an upper and a lower portion thereof are opened; a treatment water collection pipe (40) formed on a lower portion of a treatment water collection space (30a) existing between an outer side of the side wall-type filtering net (31) and an inner wall (10a-1) of a middle portion of the main body container (10) to collect treatment water passing through the side wall-type filtering net (31) to enter the treatment water collection space (30a) to transport the treatment water to a collection tank; and a rainwater discharge pipe (50) positioned lower than the treatment water collection pipe (40) to discharge rainwater which is not guided to the side wall-type filtering net (31) and a foreign substance which does not pass through the filtering net (31).

**Classifications:**

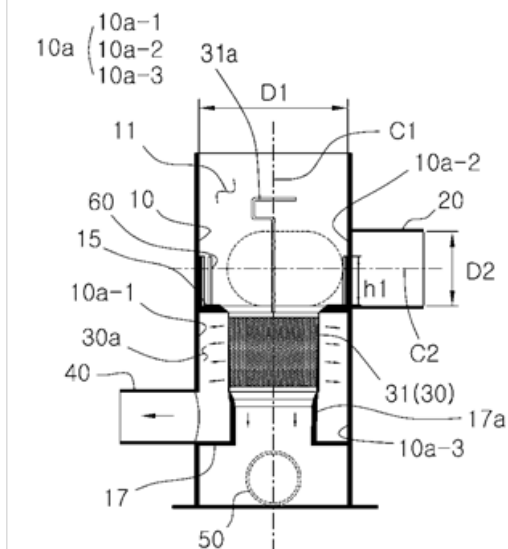
**International (IPC 8-9):** B01D35/02 C02F1/00 E03B1/04 E03B3/03

E03F5/14 (Advanced/Invention);

C02F103/00 (Advanced/Non-invention)

**CPC:** E03B3/03 B01D35/02 C02F1/001 E03B1/041 E03F5/14

B01D2221/12 C02F2103/001 Y02A20/106 Y02A20/108

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| KR101720788 B1     | 20170403         | KR20150153116      | 20151102         |

**Priority:**

KR20150153116 20151102

**Probable Assignee:** HANA ENV CO LTD**Assignee(s):** (std): HANA ENV CO LTD**Assignee(s):** HANA ENVIRONMENT CO ; HANA ENVIRONMENT CO LTD ; NOTE ONE ENVIRONMENT**Inventor(s):** (std): MIN IN JA**52) Family number: 77319772 (US2020015636A)**

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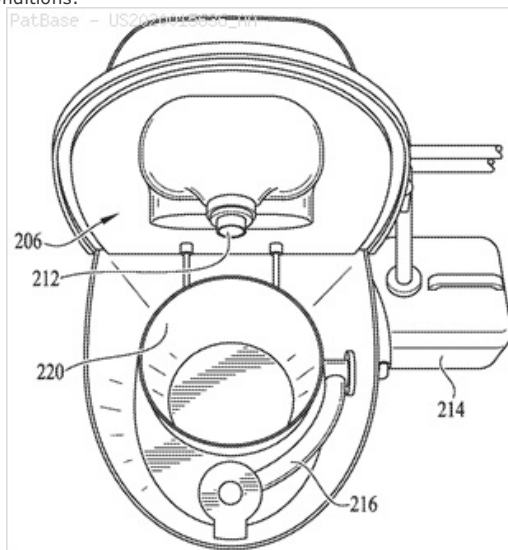
**Title:** PORTABLE BODY WASTE COLLECTION AND SANITATION SYSTEM

**Abstract:** The disclosure relates to a portable waste collection and sanitation system designed to handle liquid and solid waste, and while conserving water and minimizing odors. The sanitation system is also designed with modular components adapted for in-home installation, where the system can be quickly disassembled and relocated as needed, such as for moving the components to a new location based on environmental conditions.

**Classifications:**

**International (IPC 8-9):** A47K11/12 A47K4/00 C02F1/00 E03D11/02 E03D7/00 E04H1/12 (Advanced/Invention)

**CPC:** A47K4/00 E03D11/02 A47K11/12 C02F1/001 C02F1/003 C02F2103/001 C02F2103/005 C02F2303/02 E03B1/041 E03B2001/045 E03C1/01 E03C2001/026 E03D1/003 E03D5/00 E03D5/003 E03D5/01 E03D5/014 E03D5/016 E03D9/04 E03D9/052 E03D11/025 E03D13/00 E03D2201/00 E03F5/18 E03F11/00 E04D2013/0806

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2020015636 AA    | 20200116         | US20190508148      | 20190710         |
| WO20014520 A1      | 20200116         | WO2019US41460      | 20190711         |

**Priority:**

US20180696763P 20180711

US20190508148 20190710

**Probable Assignee:** ALASKA NATIVE TRIBAL HEALTH CONSORTIUM**Assignee(s):** (std): ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

**Inventor(s):** (std): WARREN JOHN  
**Agent(s):** VILLANUEVA ALFREDO  
**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

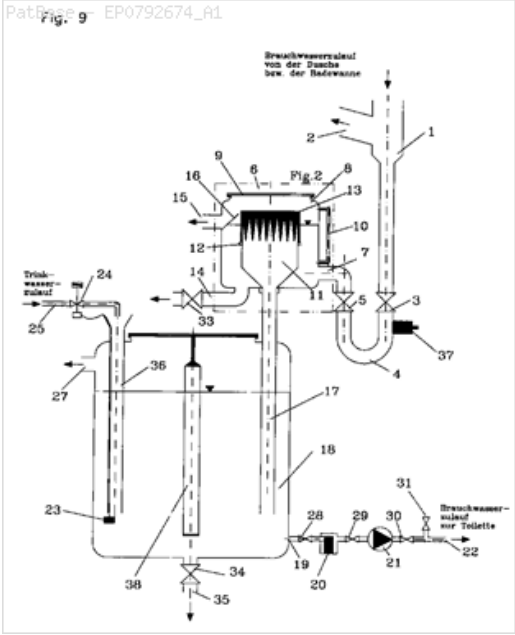
**53) Family number: 18307800 (EP0792674A1)** © PatBase

**Title:** SANITARY INSTALLATION FOR THE MULTIPLE USE OF DRINKING WATER

**Abstract:** The re-usable water installation comprises an intermediate treatment vessel (6), supplied with used water through a line (7), which filters the water and passes it from there via a pipe (17) to a storage tank (18). The filtration area is automatically variable to match the flowrate of the water supplied to it.

**Classifications:**

**International (IPC 8-9):** B01D29/00 B01D29/01 B01D29/17 B01D35/18 C02F1/00 E03B1/04 (Advanced/Invention); C02F1/32 (Advanced/Non-invention); B01D29/00 B01D29/01 B01D29/13 B01D35/00 C02F1/00 E03B1/00 (Core/Invention); C02F1/32 (Core/Non-invention)  
**International (IPC 1-7):** B01D29/00 B01D29/15 B01D29/31 B01D29/33 C02F1/00 E03B1/04 E03B11/02 E03C1/01 E03C1/122 E03D5/016  
**CPC:** F24D17/0005 F24D2200/20 B01D29/17 B01D35/18 B01D2201/48 E03C2001/005 Y02A20/154 Y02A20/148 E03B1/04 B01D29/01 C02F1/32 E03B1/042 E03B2001/045 B01D29/60 B01D29/605 B01D29/92 B01D29/945 Y02B30/18  
**European:** B01D29/01 B01D29/17 B01D35/18 E03B1/04 E03B1/04B2 L01D201/48 M02F1/32 P03B1/04B20 P03C1/00B



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AT183938 E         | 19990915         | AT19970101745T     | 19970205         |
| DE19606577 A1      | 19970828         | DE19961006577      | 19960222         |
| DE19724827 A1      | 19981217         | DE19971024827      | 19970612         |
| DE59700379 D1      | 19991007         | DE19975000379      | 19970205         |
| DK0792674 T3       | 20000327         | DK19970101745T     | 19970205         |
| EP0792674 A1       | 19970903         | EP19970101745      | 19970205         |
| EP0792674 B1       | 19990901         | EP19970101745      | 19970205         |
| ES2138407 T3       | 20000101         | ES19970101745T     | 19970205         |
| GR3032003 T3       | 20000331         | GR19990403096T     | 19991130         |

**Priority:**

DE19961006577 19960222 DE19975000379 19970205 DE19971024827 19970612

**Probable Assignee:** GROSSE PLANKERMANN ANDREAS

**Assignee(s):** (std): GROSE PLANKERMANN ANDREAS ; GROSE PLANKERMANN ANDREAS DIPL ; GROSE PLANKERMANN ANDREAS  
**Assignee(s):** GROSE PLANKERMANN ANDREAS DIPL ING FH 96049 BAMB ; GROSE PLANKERMANN ANDREAS DIPL ING FH 96049 BAMBERG DE  
**Inventor(s):** (std): GROSE PLANKERMANN ANDREAS ; GROSE PLANKERMANN ANDREAS DIPL ; GROSE PLANKERMANN ANDREAS  
**Inventor(s):** GROSE PLANKERMANN ANDREAS DIPL ING FH 96049 BAMB ; GROSE PLANKERMANN ANDREAS DIPL ING FH 96049 BAMBERG DE  
**Designated states:** AT BE CH DE DK ES FI FR GB GR IT LI NL PT SE

**54) Family number: 60547818 (US2017025988A)** © PatBase

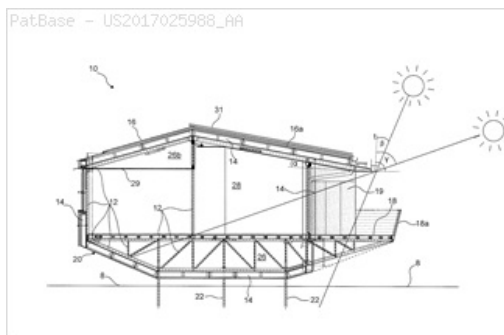
**Title:** MOBILE HOUSE UTILISING RENEWABLE ENERGY

**Abstract:** The invention relates to a mobile house utilising renewable energy, characterised by comprising:-a shell structure (20) comprising a mountable and dismountable supporting structure (12) and panels (14) and roof (16) mounted thereon with releasable connections,-ground screws (22) affixing the shell structure (20) to the ground, and-electric energy supply system (30), potable water supply system (50) waste water treatment system (80), ventilation and heating system (90) utilising renewable energy and carried by the shell structure (20).

**Classifications:**

**International (IPC 8-9):** B01D21/00 B01D21/02 C02F1/00 C02F1/28 E03B1/04 E03B3/02 E04B1/34 E04B1/343 E04H1/00 E04H1/02 E04H1/12 F24F12/00 H02S20/23 H02S20/30 (Advanced/Invention)

**CPC:** E04H1/12 E03B1/041 E03B3/02 E03B2001/045 E03B2001/047 E04B1/3408 E04H1/02 F24F12/006 Y02B30/563 E04H1/06 E04H1/1205 F24F2130/20 Y02A20/108 Y02B10/12 Y02W10/37 B01D21/0012 B01D21/02 C02F1/001 C02F1/283 C02F2103/001 C02F2103/002 C02F2103/005 E04B1/34331 E04B1/34352 E04H1/005 H02S20/23 H02S20/30  
**US:** 1/1 52/79.5



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2015101968 AD    | 20151008         | AU20150101968      | 20150325         |
| AU2015101968 AD    | 20191024         | AU20150101968      | 20150325         |
| AU2015242365 AA    | 20161020         | AU20150242365      | 20150325         |
| AU2015242365 AB    | 20190926         | AU20150242365      | 20150325         |
| CN106460374 A      | 20170222         | CN201580022680     | 20150325         |
| DE602015016097 D1  | 20181011         | DE201560016097T    | 20150325         |
| EP3126584 A2       | 20170208         | EP20150722577      | 20150325         |
| EP3126584 B1       | 20180912         | EP20150722577      | 20150325         |
| US2017025988 AA    | 20170126         | US20150301211      | 20150325         |
| WO15150843 A2      | 20151008         | WO2015HU00028      | 20150325         |
| WO15150843 A3      | 20151203         | WO2015HU00028      | 20150325         |

#### Priority:

HU20140000182 20140401 EP20150722577 20150325 WO2015HU00028 20150325

**Probable Assignee:** NOAH HOUSE KFT

**Assignee(s):** (std): NOAH HOUSE KFT

**Inventor(s):** (std): BLASKOVICH AKOS

**Agent(s):** WATERMARK INTELLECTUAL PROPERTY PTY LTD; WATERMARK PATENT AND TRADE MARKS ATTORNEYS; KACSUK ZSOFIA; KACSUKPATENT KFT

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 55) Family number: 30182825 (US2006032493A)

© PatBase

**Title:** DEVICE FOR COLLECTING ATMOSPHERIC WATER

**Abstract:** The present invention is directed at a water collection device which condenses water vapour in atmospheric air to water. The device comprises means for drawing the atmospheric air into the device; means for condensing the moisture vapour in the atmospheric air into water, and means for collecting the water.

#### Classifications:

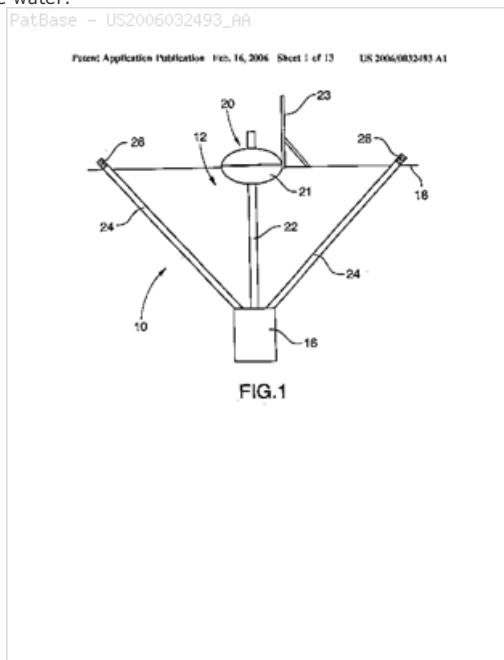
**International (IPC 8-9):** B01D5/00 E03B3/28 F24J2/08 F24J2/10 F24S23/30 F24S23/70 F25B27/00 F25D23/00 (Advanced/Invention)

**International (IPC 1-7):** B01D5/00 C02F1/14 E03B3/28

**CPC:** Y02A20/109 Y02A20/212 B01D5/0075 B01D5/0081 B01D5/009 C02F1/14 E03B3/28

**European:** B01D5/00H16 B01D5/00K10 B01D5/00K16 C02F1/14 E03B3/28

**US:** 126/684 62/235.1 62/271



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2003240324 AA    | 20031222         | AU20030240324      | 20030605         |
| US2006032493 AA    | 20060216         | US20030516746      | 20030605         |

|               |          |               |          |
|---------------|----------|---------------|----------|
| US7343754 BB  | 20080318 | US20030516746 | 20030605 |
| WO03104571 A1 | 20031218 | WO2003CA00860 | 20030605 |

**Priority:**

US20020385894P 20020606 WO2003CA00860 20030605 US20040516746 20041206

**Probable Assignee:** FREEDOM WATER CO LTD

**Assignee(s):** (std): FREEDOM WATER CO LTD ; FREEDOM WATER COMPANY LTD ; RITCHEY JONATHAN G

**Inventor(s):** (std): RITCHEY JONATHAN G

**Inventor(s):** JONATHAN G RITCHEY ; RITCHEY JONATHAN

**Agent(s):** BORDEN LADNER GERVAIS LLP; FASKEN MARTINEAU DUMOULIN LLP

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SC SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**56) Family number: 12291856 (DE19828880A1)**

© PatBase

**Title:** WATER RECYCLING FOR DOMESTIC SYSTEM

**Abstract:** A water recycling system for domestic layouts has gray water collected from selected points e.g. bathtub, wash basin and stored in a tank (3).- DETAILED DESCRIPTION - The gray water is ducted into the tank via a filter (2). Excess water is ducted into the sewer drain (7). Water for filling WC cisterns is taken from the gray water tank via a pump (4). If the gray water tank is empty then a set level of filling is taken from the clean water inlet (6) via a dispensing unit (5)

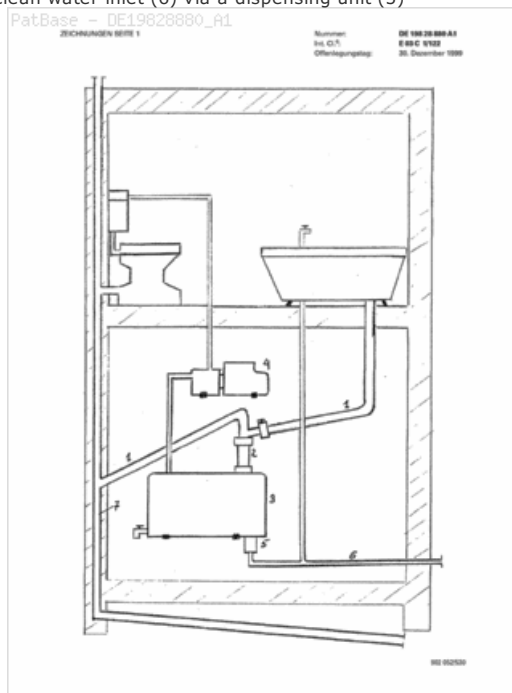
**Classifications:**

**International (IPC 8-9):** E03B1/04 (Advanced/Invention); E03B1/00 (Core/Invention)

**International (IPC 1-7):** E02F1/00 E03C1/122

**CPC:** Y02A20/148 E03B1/04 C02F2103/002 E03B2001/045

**European:** E03B1/04 M02F103/00C P03B1/04B20



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE19828880 A1      | 19991230         | DE19981028880      | 19980623         |

**Priority:**

DE19981028880 19980623

**Probable Assignee:** SOPALLA JOACHIM

**Assignee(s):** (std): SOPALLA JOACHIM

**Inventor(s):** (std): SOPALLA JOACHIM

**57) Family number: 72567857 (WO18232466A1)**

© PatBase

**Title:** "DEVICE FOR IMPROVING WATER QUALITY"

**Abstract:** Disclosed herein is a device for improving water quality, said device comprising: an inlet for inflow of liquid into the device; a hydraulic circuit for receiving liquid from the inlet, the hydraulic circuit comprising at least a first tank and a second tank, wherein the first tank is upstream of the second tank and wherein one of said first and second tanks is nested within the other of said first and second tanks; an outlet at a downstream end of the hydraulic circuit for discharge of liquid from the device; one or more contaminant separation elements in the hydraulic circuit for separation of contaminants from liquid passing therethrough using at least one of: gravitational separation; sized-based filtration; chemical separation; magnetic separation; electrolytic separation; and adsorption or attraction-based separation, wherein the first tank is a settlement tank for gravitational settlement of contaminants from the liquid.

**Classifications:**

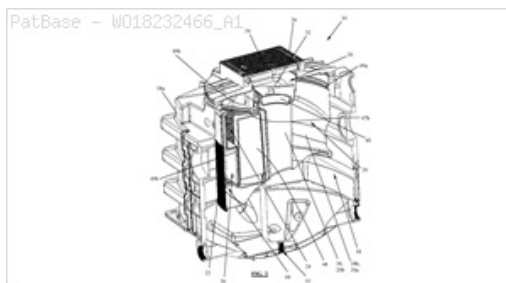
**International (IPC 8-9):** B01D21/00 B01D21/26 C02F1/00 E03F5/14 (Advanced/Invention)

**CPC:** C02F9/005 C02F1/28 C02F1/38 C02F1/461 C02F1/481

C02F2101/105 C02F2101/16 C02F2101/32 C02F2103/001

B01D21/0006 B01D21/0009 B01D21/0012 B01D21/003

B01D21/2411 E03B3/03 E03B11/00 E03F5/18 E03F5/26 B01D21/00  
B01D21/26 E03F5/14



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2018288385 AA    | 20200206         | AU20180288385      | 20180622         |
| WO18232466 A1      | 20181227         | WO2018AU50627      | 20180622         |

#### Priority:

AU20170902424 20170623 WO2018AU50627 20180622

**Probable Assignee:** ONE WATER NATURALLY PTY LTD

**Assignee(s):** (std): ONE WATER NATURALLY PTY LTD

**Inventor(s):** (std): SPARKE DAVID

**Agent(s):** FB RICE PTY LTD

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

#### 58) Family number: 56839877 (US2016289087A)

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**Title:** METHOD AND SYSTEM FOR REMOTELY MONITORING A GROUP OF CIRCULATING-WATER UTILIZATION SYSTEMS

**Abstract:** A method of remotely monitoring a group of circulating-water utilization systems comprising a plurality of circulating-water utilization systems 1, includes: an operational-ratio detection step of detecting operational ratios of treatment vessels forming a treatment-vessel row of a purifying unit 8, for each of the plurality of circulating-water utilization systems constituting the group of circulating-water utilization systems; a data transmission step of transmitting data related to the operational ratios of the treatment vessels detected in the operational-ratio detection step via a transmission line 60; a data reception step of receiving the data related to the operational ratios of the treatment vessels transmitted in the data transmission step; and a data display step of displaying the data related to the operational ratios of the treatment vessels received in the data reception step.

#### Classifications:

**International (IPC 8-9):** C02F1/00 E03B1/00 E03B1/04 G01N33/18

H04M11/00 (Advanced/Invention);

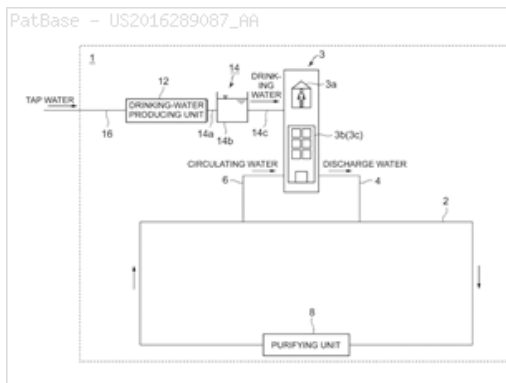
C02F103/00 (Advanced/Non-invention)

**CPC:** G01N33/18 E03B1/042 C02F2201/008 C02F2103/002

C02F2103/001 C02F2307/14 E03B2001/045 E03B2001/047

C02F1/008 C02F2209/008 E03B1/04

**US:** 1/1 702/25



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ID201706740 A      | 20170622         | ID2016P0003704     | 20141204         |
| JP2015108255 A2    | 20150611         | JP20130251622      | 20131205         |
| JP5518245 B1       | 20140611         | JP20130251622      | 20131205         |
| MX2016006861 A1    | 20160819         | MX20160006861      | 20141204         |
| US2016289087 AA    | 20161006         | US20140037601      | 20141204         |
| US10315930 BB      | 20190611         | US20140037601      | 20141204         |
| WO15083782 A1      | 20150611         | WO2014JP82094      | 20141204         |

#### Priority:

JP20130251622 20131205 WO2014JP82094 20141204

**Probable Assignee:** MITSUBISHI HITACHI POWER SYSTEMS LTD

**Assignee(s):** (std): MITSUBISHI HEAVY IND LTD ; MITSUBISHI HITACHI POWER SYS

**Assignee(s):** MITSUBISHI HITACHI POWER SYSTEMS LTD

**Inventor(s):** (std): MINAMIURA JUNICHI ; YAGITA HIROYUKI ; YOKOTA YUKINOBU ; KITAGAWA RIKI ; HYODO JUN ; SHIN HAYATO ; KITAGAWA TSUTOMU ; JUN HYODO ; HIROYUKI YAGITA ; RIKI KITAGAWA ; HAYATO SHIN ; JUNICHI MINAMIURA ; YUKINOBU YOKOTA

**Agent(s):** NABILA AM BADAR SH LLM; SEISHIN IP PATENT FIRM PC; WESTERMAN HATTORI DANIELS AND ADRIAN LLP

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR

**59) Family number: 34887901 (US2010125938A)**

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**Title:** INSTALLATION FOR RECYCLING SANITARY WATER

**Abstract:** The present invention relates to an installation for recycling waste water coming from a sanitary equipment (22,23) and for reusing it to flush at least one toilet bowl (1), equipped with a system for saving flushing water fitted above the toilet and comprising a tank (3), a water-flushing mechanism (25A,24,17,14) positioned in the tank (3), a first pipe (21,7,15) to supply said waste water to the tank (3), a second pipe (13A) to supply running water to the tank, a filter (18,20) and a pump (19) positioned in the first pipe, a water-level sensor (11) and a controlled stop valve (13), wherein the flushing mechanism comprises a vertical-action drain valve (25A) positioned inside a flow-control tube (27) that extends over the entire height of the tank (3) and only connected to the rest of the tank (3) by one or more apertures (35) drilled in the side of said tube (27).

**Classifications:**

**International (IPC 8-9):** C02F1/00 E03B1/04 E03C1/01 E03D1/00 E03D1/22 E03D1/34 E03D5/00 E03D5/016 E03D5/10 E03D9/05 E03D9/08 (Advanced/Invention);

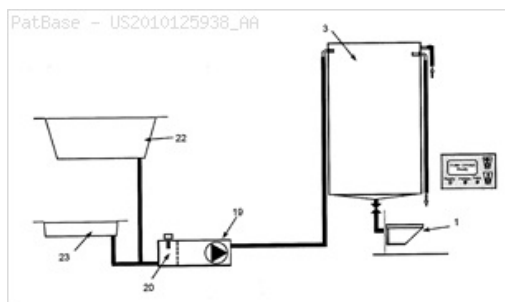
C02F1/00 E03B1/00 E03C1/00 E03D1/00 E03D1/02 E03D1/30 E03D5/00 E03D9/04 E03D9/08 (Core/Invention)

**International (IPC 1-7):** C02F1/00 E03B1/04 E03C1/01 E03D1/22 E03D1/34 E03D5/00

**CPC:** C02F2103/002 C02F2209/005 C02F2209/42 E03B1/04 E03B1/042 E03B2001/045 E03B2001/047 E03D5/003 E03D5/006 Y02A20/108 Y02A20/148 Y02A20/304

**European:** E03B1/04 E03B1/04B2 E03D5/00B E03D5/00B1 M02F103/00C M02F209/00T M02F209/42 P03B1/04B20 P03B1/04B22

**US:** 4/317 4/317P



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AT430224 E         | 20090515         | AT20060828085T     | 20061212         |
| AU2006335009 AA    | 20070719         | AU20060335009      | 20061212         |
| AU2006335009 BB    | 20110526         | AU20060335009      | 20061212         |
| CA2635779 AA       | 20080625         | CA20062635779      | 20061212         |
| DE602006006601 D1  | 20090610         | DE200660006601T    | 20061212         |
| DK1979552 T3       | 20090803         | DK20060828085T     | 20061212         |
| EA013952 B1        | 20100830         | EA20080001707      | 20061212         |
| EA200801707 A1     | 20081230         | EA20080001707      | 20061212         |
| EP1808414 A1       | 20070718         | EP20060447010      | 20060116         |
| EP1979552 A1       | 20081015         | EP20060828085      | 20061212         |
| EP1979552 B1       | 20090429         | EP20060828085      | 20061212         |
| ES2328633 T3       | 20091116         | ES20060828085T     | 20061212         |
| JP2009523925 T2    | 20090625         | JP20080549716T     | 20061212         |
| MA30256 B1         | 20090302         | MA20080031169      | 20080812         |
| PL1979552 T3       | 20091030         | PL20060828085T     | 20061212         |
| PT1979552 T        | 20090901         | PT20060828085T     | 20061212         |
| TNSN08265 A1       | 20091030         | TN2008SN00265      | 20080616         |
| US2010125938 AA    | 20100527         | US20060160870      | 20061212         |
| WO07079552 A1      | 20070719         | WO2006BE00132      | 20061212         |

**Priority:**

EP20060447010 20060116 EP20060828085 20061212 WO2006BE00132 20061212

**Probable Assignee:** BILLON MICHEL

**Assignee(s):** (std): BILLON MICHEL ; MICHEL BILLON

**Inventor(s):** (std): BILLON MICHEL ; MICHEL BILLON

**Agent(s):** HALFORDS IP; GOWLING LAFLEUR HENDERSON LLP; PRONOVEM; REINHART BOERNER VAN DEUREN PC

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**60) Family number: 47721919 (US2010300544A)**

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**Title:** RAINWATER RECOVERY AND TREATMENT SYSTEM

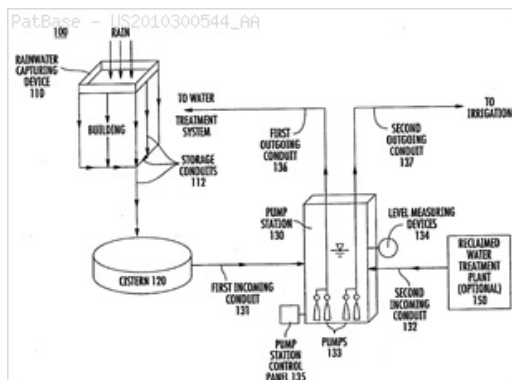
**Abstract:** Embodiments of the invention relate to systems and methods for the harvesting and treatment of rainwater for secondary use within buildings. Rainwater is harvested utilizing a rainwater capturing device and stored in a cistern prior to treatment until a demand for secondary use is made. The rainwater may be combined with reclaimed water from a water treatment plant. Once a demand for secondary use is made, the water is subjected to treatment as it travels to the point of use. Treatment includes neutralizing the pH of the rainwater, filtering the rainwater to remove particulate matter, irradiating the rainwater with ultraviolet light, and introducing a chlorine solution into the rainwater.

**Classifications:**

**International (IPC 8-9):** E03C1/00 (Advanced/Invention)

**CPC:** E03B3/03 C02F1/008 C02F1/32 C02F1/44 C02F1/66 C02F1/76 C02F9/00 C02F2103/001 C02F2209/006 E03B1/04 E03B7/074 E03B2001/047 Y10T137/0318 Y10T137/8376 Y02A20/106 Y02A20/108

**European:** C02F1/00T C02F9/00 E03B1/04 E03B3/03 E03B7/07D M02F1/32 M02F1/44 M02F1/66 M02F1/76 M02F103/00B M02F209/00T2 M02F9/00 P03B1/04B22

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2010300544 AA    | 20101202         | US20090477015      | 20090602         |

**Priority:**

US20090477015 20090602

**Probable Assignee:** WATERDOGS WATER RECOVERY LLC  
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**Inventor(s):** (std): EBERLE KEVIN C ; BALDWIN TIMOTHY JOSEPH  
**Agent(s):** MOORE AND VAN ALLEN PLLC

**61) Family number: 51064934 (US2013220901A)**

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**Title:** SYSTEM FOR CAPTURING, CLASSIFYING AND SEPARATING RAINWATER

**Abstract:** A system based on the elimination of debris, turbidity and undesired water collected from the rain, through a system having a group of parts for functioning and utilizing all the collected water in a efficient and effective way. The system initially possesses a debris separating and deviating filter (8), with the characteristics of its filters (10), (11) and (13), to adapt greatly to the momentary overflows of rain and to retrieve and eliminate undesirable matter from the piping. It also accomplishes the elimination of turbid water by reading of turbid water data, using a beam of light (19) and a light receptor (21). It has a self-calibrating routine in its appliances for precision in the readings. Besides eliminating the turbid water, it also measures the conductivity of the collected water by a sensor (17) to obtain the best quality of water. It has luminous and/or resonant signs that detect system crashes. The sensors and the valve (23) are managed by the command module (33) that collect water with reference of being of the most pure and clean quality, free from the various impurities aggregated to rainwater on its way to the exit (24). The undesired waters are ejected by the exit (30).

**Classifications:****International (IPC 8-9):** C02F1/00 C02F1/68 C02F1/76 E03B1/04

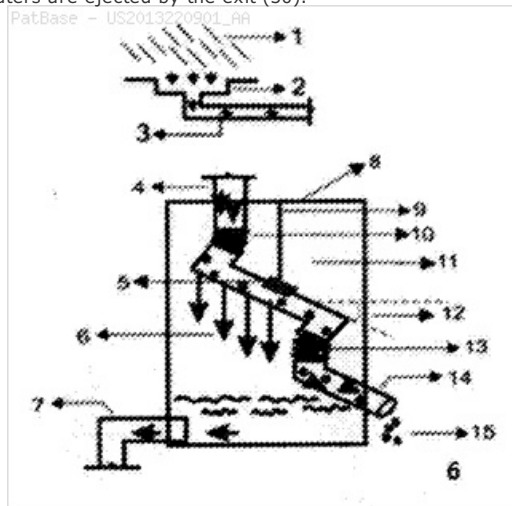
E03B3/02 G01N21/59 (Advanced/Invention);

C02F103/00 (Advanced/Non-invention)

**International (IPC 1-7):** E03B3/02**CPC:** C02F1/004 C02F1/008 C02F1/76 C02F2103/001 C02F2209/11

C02F2209/42 C02F2303/04 C02F2303/24 E03B1/041 E03B3/02

E03B2001/047 G01N21/59 Y02A20/108 C02F1/685 C02F2103/007

**US:** 1/1 210/744 210/86**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| BRPI1004676 A2     | 20130226         | BR2010PI04676      | 20101104         |
| BRPI1004676 B1     | 20191022         | BR2010PI04676      | 20101104         |
| IN04950DN2013 A    | 20141128         | IN2013DN04950      | 20130604         |
| US2013220901 AA    | 20130829         | US20110881708      | 20111101         |
| US2017088437 AA    | 20170330         | US20160229399      | 20160805         |
| US9975783 BB       | 20180522         | US20160229399      | 20160805         |
| WO12058740 A1      | 20120510         | WO2011BR00407      | 20111101         |

**Priority:**

BR2010PI04676 20101104 BR2010PI04676 20111025 WO2011BR00407 20111101  
 US20130881708 20130425 US20160229399 20160805

**Probable Assignee:** GARIOS WADIH ANTONIO**Assignee(s):** (std): GARIOS WADIH ANTONIO ; WADIH ANTONIO GARIOS**Inventor(s):** (std): GARIOS WADIH ANTONIO ; WADIH ANTONIO GARIOS**Agent(s):** NEVRIVY PATENT LAW GROUP PLLC

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**62) Family number: 74160975 (CN109691378A)**

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**Title:** GARDEN AND PARK GREEN BELT WITH FUNCTION OF COLLECTION, TREATMENT AND REUTILIZATION OF RAINWATER

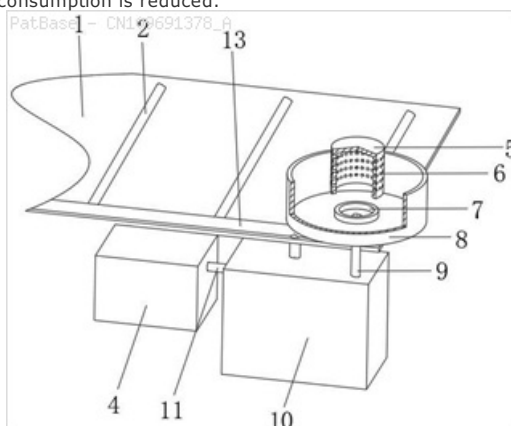
**Abstract:** The invention discloses a garden and park green belt with a function of collection, treatment and reutilization of rainwater. The green belt includes a flat plate; the front end of the upper surface of the flat plate is provided with a main blind pipe; a water outlet of the main blind pipe communicates with a water inlet of the upper surface of a precipitation tank through a guide pipe; a filtration device is installed at the water inlet inside the precipitation tank; the water outlet of the precipitation tank communicates with the water inlet of a filtration box by a water passing pipe; the filtration box is fixedly provided with an activated carbon filter screen, a polypropylene fiber filter element, a PP cotton filter element, and a non-woven fabric net in order from left to right; thenon-woven fabric net is close to the water inlet of the filtration box, the water outlet of the filtration box communicates with the water inlet of an external water accumulating tank through the guide pipe, water permeating through land and water on the surface of the garden and park green belt are all collected, and the rainwater collection efficiency is high; and the collected rainwater can berecycled through precipitation of the precipitation tank and filtration of the filtration box, the utilization efficiency of the rainwater is improved, long-time come-go transportation of water resources in a lower pipeline is avoided, and consumption is reduced.

**Classifications:**

**International (IPC 8-9):** A01G25/00 C02F9/02

E03B3/02 (Advanced/Invention)

**CPC:** A01G25/00 C02F1/001 C02F1/283 C02F9/00 C02F2001/007 C02F2103/001 C02F2301/08 C02F2303/02 E03B3/02



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| ■ CN109691378 A    | 20190430         | CN201811590355     | 20181225         |

**Priority:**

CN201811590355 20181225

**Probable Assignee:** FLOWER KING ECO ENG CO LTD

**Assignee(s):** (std): FLOWER KING ECO ENG CO LTD

**Assignee(s):** FLOWER KING ECO ENGINEERING CO ; KAO ECOLOGICAL ENGINEERING CO LTD

**Inventor(s):** (std): YIN XIAOXI ; WANG HUI ; HU XIAOYI ; CHEN LING ; LIN XIAOJUN ; XIAO GUOQIANG ; YIN XIAOQIN

**63) Family number: 77077981 (EP3587678A1)**

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**Title:** WATER SUPPLY MANAGEMENT SYSTEM AND METHOD AND COMPUTER-READABLE RECORDING MEDIUM INCLUDING INSTRUCTION FOR PERFORMING THE METHOD SYSTEME ET PROCEDE DE GESTION DE L'ALIMENTATION EN EAU ET SUPPORT D'ENREGISTREMENT LISIBLE PAR ORDINATEUR COMPRENANT UNE INSTRUCTION POUR

**Abstract:** Water supply management system (1000) and method and a computer-readable recording medium including instructions for performing the method. The water supply management system (1000) includes a first water storage tank (100), a second water storage tank (200), a water treatment device (300), and a controller (600) that controls opening or closing of inflow pipes and drain pipes connected to the first water storage tank (100), the second water storage tank (200), and the water treatment device (300). The first water storage tank (100) stores first stored water, and at least one of rainwater (30) and seawater (10) overflowing in case of flood is introduced into the first water storage tank (100) to form the first stored water. The second water storage tank (200) stores second stored water, and at least one of freshwater (20) in a water supply source and the first stored water in the first water storage tank (100) is introduced into the second water storage tank (200) to form the second stored water. The water treatment device (300) purifies the second stored water released from the second water storage tank (200) and releases potable water. The controller (600) controls inflow rates and outflow rates of the rainwater (30), the seawater (10), the freshwater (20), the first stored water, the second stored water, and the potable water.

**Classifications:**

**International (IPC 8-9):** C02F9/00 E03B1/02 E03B11/10 E03B11/14

E03B3/02 E03B3/11 G06Q50/06 G06Q50/26 (Advanced/Invention)

**CPC:** C02F1/001 C02F1/006 C02F1/008 C02F1/283 C02F1/441 C02F1/442 C02F1/444 C02F1/76 C02F1/78 C02F9/00 C02F2103/001 C02F2103/08 C02F2209/05 C02F2209/40 E03B1/02 E03B3/02 E03B3/11 E03B11/10 E03B11/14 E03B2001/047 G05B2219/2605 G06Q50/06 G06Q50/26

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| EP3587678 A1       | 20200101         | EP20190181343      | 20190619         |
| KR102094704 B1     | 20200330         | KR20180073141      | 20180626         |
| KR20200000899 A    | 20200106         | KR20180073141      | 20180626         |

KR20180073141 20180626

**Assignee(s):** (std): UNIV KOREA RES AND BUS FOUN

BUSINESS FOUNDATION

Agent(s): RGTB

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PL PT RO RS SE SI SK SM TR